Non-market Sector in the Economy of Russia

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1. INTRODUCTION

The goal of the project under review is to study the degree of adjustment of Russian industrial enterprises to the market economy conditions. The survey is based on the institutional approach implying that an industrial enterprise is regarded as a unit of observation. The distinguishing feature of the project is that two methods are combined: the quantitative one based on the study of the system of statistical indicators which relate to specific enterprises, and the qualitative method which requires a survey (with the use of questionnaires filled in by the top managers of the enterprises in the sample). In other words, on the one hand, the survey aims to assess how the type of economic behavior of an enterprise conforms to a given sample model which in its essence is recognized as a market one. On the other hand, the survey considers the movements of actual statistical indicators characterizing the activity of an enterprise, and positive results are regarded as empiric evidence of the efficient market behavior thereof. None of the above methods though may guarantee an absolutely reliable result, since it is either dependent on the subjective choice of the sample model, or on the impact of other factors, including changes in the overall market conjuncture. The value of the results received, however, may be considerably increased through the comparison thereof.

The group of enterprises in the sample which were selected for the project is, in our opinion, representative of the total aggregate of Russian industrial enterprises, with the account of restrictions to be discussed below. Thus, the indicators designed for the given sample characterize, with certain reservations, not the companies in the sampling only, but the Russian industry at large. We believe that the indicators calculated over a span of years could be most successfully applied for analyzing the level of adjustment of Russian industrial enterprises to market conditions. Such adjustment to the market is absolutely indispensable for sustainable economic development in the country, as well as for the identification of factors determining the development level.

Today the project is at the implementation stage. The data base including statistical information on enterprises in the sampling for 1998, 1999 and partially for 2000 has actually been formed, questionnaires filled in by the chief executive officers of the enterprises included in the sampling have been analyzed. On the basis of the aggregate of information which has been accumulated a system of indicators was developed and the preliminary analysis thereof was performed. The necessary data for 1997 will have been received and processed within the coming two or three months. The data base for 2000 will obviously have been fully completed by November 2001. Thus, the final results of the survey based on the 1998-2000 data will most likely have been received before the late 2001.

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The work has been carried out by a creative team headed by Professor Yassin, Doctor of Economics, with the active participation of S.B. Avdashev, Doctor of Economics, I.B. Gurkov, Doctor of Economics, I.V. Lipsits, Doctor of Economics, E.N. Askerov, Ph.D.

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2. THE SUBJECT MATTER OF THE SURVEY

The subject matter of the Project is to study the non-market sector in the Russian economy. The non-market sector concept, as understood in this survey, differs, for instance, from that used in the system of national [income] accounts (SNA). Under the SNA, "non-market" concept implies that institutional units manufacture products and services and provide thereof to consumers either free of charge or at prices considerably lower than the market ones. Under the SNA, non-commercial organizations servicing households (such as trade units or churches), or institutional units funded mainly out of the state budget (such as schools or hospitals) fall into the category of non-market ones. The costs incurred by non-market producers may be reimbursed, as mentioned above, either out of the state budget funds, or with voluntary donations and fees, and other transfers received both from residents of the national economy or funds coming from abroad. Non-market units may receive market proceeds from the activity thereof; such proceeds, however, cannot constitute the basic income, and the very objective to receive market income cannot determine the type of economic behavior of an institutional unit.

In contrast to institutional units which are non-market by definition, there is always an aggregate of institutional units in real economy created to ensure economic benefits for the owners thereof (including the state). For a certain time, however, they have failed to perform the above function. Economic disarray in such institutional units may be of temporary nature, and then losses are compensated for either with the income received at a different time, or with the borrowed funds. On the other hand, if under a market economy enterprises fail to bring economic benefit for a fairly long period of time, they are doomed to disappear. The only exception may be enterprises of social or strategic significance which are subsidized from the state budget. Under the SNIA classification, such enterprises are included into institutional sectors of financial or non-financial corporations irrespective of the negative results of their economic activity.

It is these very enterprises, though designated for the market, but bringing no economic good due to the long-drawn period of adjustment to the changed conditions of Russia's economy in transition, or due to other reasons, that are the object for our analysis. We term such enterprises "non-market" ones implying by this term that the institutional units conventionally referred by the authors to this group do not maintain the type of economic behavior which is traditionally considered typical for the market, and fail to attain the results justifying the existence thereof from the standpoint of the market economy.

In this sense, the non-market sector is fairly comprehensive. With respect to the Russian economy, it could involve whole industries (such as housing and utilities sector or agriculture). Under the Project, we confined ourselves to the study of a group of enterprises which have not sufficiently adjusted themselves to the market. The existence of such businesses undoubtedly affects both the final indicators characterizing the results of industrial development and the economy at large.

The essence of the working hypothesis may be briefly described as follows: whether positive economic results may be attained, directly depends on the observance by enterprises of certain rules of conduct generally accepted under a market economy. This factor cannot certainly be the only one, at times, it is not even of decisive nature, since most often the

results, as regards a specific enterprise, depend on external factors, such as political stability, or the national currency exchange rate, for instance. Strategically, however, no efforts aimed to reform the economy may be successful without drastic changes in the situation with businesses.

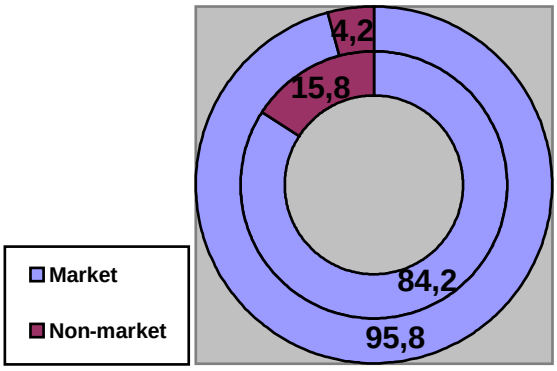
The overall objective of the Project is to study the parameters of and movements in the non-market sector made up of inefficient industrial enterprises. We maintained that the way to attain the objectives set in the survey is to determine the sample of enterprises relating to the sector, and calculate the indicators characterizing the above group. At the next stage, the survey is aimed to analyze the model for the behavior of enterprises falling into various categories of economic efficiency (determined on the basis of statistical indicators), which leads to conclusions about the degree to which economic success (or failure to succeed) of enterprises depends on the behavior model thereof, and to which degree it is dependent on other factors.

It should be noted that sector-by-sector analysis has yet been traditional for the Russian economic statistic. In many instances this approach may be justified, but not when a survey relates to economic behavior, since behavior-based decisions are taken at the level of enterprises. This is the reason why the prevailing approach in the SNA is an institutional one. Working on this Project we also considered institutional analysis as a background for our survey and, first and foremost, we used source statistical data relating to the level of enterprises. This certainly does not exclude the application of sector-by-sector analysis in instances where it may lead to additional results.

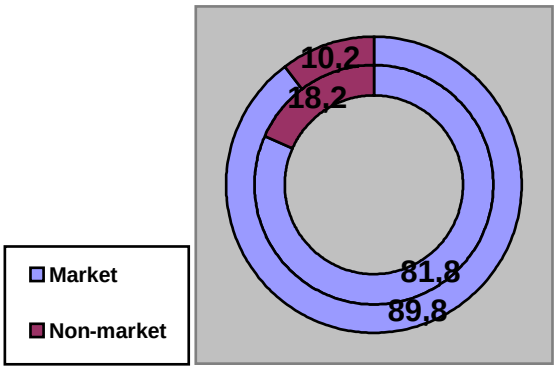
The latter circumstance has in many aspects determined the major technical problem relating to the objectives of the Project and ways to attain them, specifically, getting source information from enterprises. We would like to remind the reader that the Goskomstat publishes only consolidated figures illustrating results shown at a sectoral level or the level of economy at large.

3. KEY RESULTS OF THE SURVEY

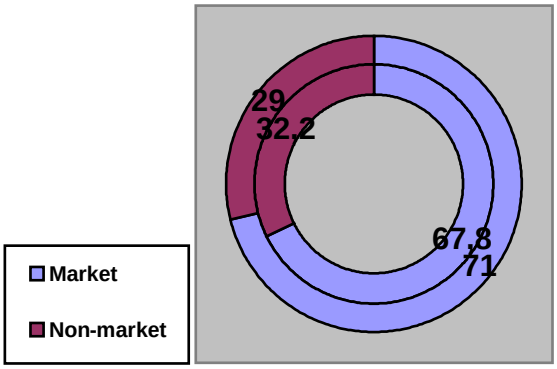
The survey conducted has shown that even ten years after the start of the drastic reforms in the Russian economy, the process of transforming the business sector has not been completed and a considerable portion of enterprises is still operating inefficiently. As Figure 1 given below shows, the share of non-market (inefficient) sector evaluated on the basis of different criteria is fairly high, as of today. The share appears particularly impressive (and is decreasing slowly) when the assessments are made on the basis of the critical debt criterion, the figure being 29% in 1999. Given the fact that the actual efficiency of a company is determined not only by the product manufacturing process, and not even by the shipment of products to a client at a price including profit, but also by the actual receipt of payment for the above products. The existence of such a high share of enterprises unable to get in due time the funds which are frozen and idle as accounts receivable cannot but evoke concern.



The proportion between enterprises of the market and non-market sectors in the economy of Russia between 1998 and 1999 (criterion used: gross value added, the shares are calculated on the basis of the number of enterprises, the outside circle stands for 1999 г.)



The proportion between enterprises of the market and non-market sectors in the economy of Russia between 1998 and 1999 (criterion used: the adjusted value added, the shares are calculated on the basis of the number of enterprises, the outside circle stands for 1999 г.)



The proportion between enterprises of the market and non-market sectors in the economy of Russia between 1998 and 1999 (criterion used: critical debt, the shares are calculated on the basis of the number of enterprises, the outside circle stands for 1999)

Fig. 1. The proportion between enterprises of the market and non-market sectors in the economy of Russia between 1998-1999 is calculated on the basis of different criteria.

As can be seen on Fig.1, the market sector considered on the basis of each particular criterion increased in 1999, as compared to 1998. Nevertheless, the non-market sector

measured on the basis of two criteria - the amount of adjusted value added and critical debt - makes up upon the results of 1999 approximately 30% of the total number of enterprises, while the share of "decaying" enterprises amounts to 8%. The combined analysis of statistical data and the results received on the basis of questionnaires allow to maintain that economic criteria have not yet become decisive for all economic agents when the latter take managerial and other decision relating to the functioning of enterprises. Since the results shown by the Russian economy in 2000 exceeded the performance of 1999, there are grounds to believe that when statistical data for the year 2000 on the enterprises included into this sampling is analyzed, the role of the market sector is expected to increase with respect to each selected criterion.

It is noteworthy, however, that though, when the gross value is adjusted, the share of the market sector is going down, the structure of the aggregate value added remains actually unchanged from the sectoral standpoint, that is, the sectors of manufacturing industry will be unable to catch up with the raw materials complex, as regards the value added generated thereby.

The situation is influenced by many factors, specifically: the settlement system and prices are slowly going back to normal which is a break on development. For instance, on the basis of the data received in the survey we could state that just as before, the overpriced barter supplies continue to affect the economic status of enterprises, being the reason why companies are actually stripped of the development funds.

Incompleteness of the radical reforms in the economic system of Russia and the fragmentary transfer of all its segments to the market efficiency criteria is also manifested in a situation when inefficient (non-market) enterprises receive loans with no greater difficulty than the efficient (market) ones. Availability of loans for a considerable part of “decaying” enterprises allows to suggest that the non-market sector has somehow adjusted itself to the economic situation when with subsidies and preferences received mainly through government support and under unequal competition, the above category of companies may engage in business activity without having to raise economic efficiency.

Non-market sector enterprises (Group A and "decaying" enterprises constituting this group) reported in the questionnaires that their capacity utilization rate is lower than the average shown in the sampling: almost half of the Group A enterprises have the capacity utilization rate below 50%. On the one hand, this is evidence of low competitiveness and insufficient demand for products of the A-group enterprises, on the other, most probably, of the existence of many old-type soviet enterprises which over the past decade have failed to upgrade their production capacities and adjust the assets thereof to the demands of the market.

At the same time, many inefficient enterprises, as far as we can see, are not going to take particularly great efforts to improve their products, since they are fairly sure of being superior to their foreign competitors: about 48% (over 30 units) of “decaying” enterprises are convinced that their products are no worse than foreign analogues, while 27% believe that the consumer goods manufactured by them are more attractive than those of other producers.

Most likely, enterprises give such optimistic estimates of the own products’ competitiveness with imported goods due to the fact that they mainly sell their products in the Russian home market where most enterprises, particularly the Russian ones, so far do not have to face equal competition, and the government agencies pursue protectionist policy with respect to

them. Insofar, if one tries to verify the assertions about the allegedly attained level of competitiveness of the Russian goods and takes a look at the export figures, the reliability of such self-estimates will rapidly go down: less than 15% of enterprises export 20% and more of the products thereof, while the export share for 69% of enterprises is below 5%.

An in-depth statistical analysis made it possible to see that despite a certain decrease in the share of barter arrangements, so far no drastic changes have been observed in the price ratio under barter operations and in cash settlements. As a result, the overpriced barter supplies continue to affect the economic status of enterprises and strip the latter of the development funds.

The analysis of the material gathered allowed to identify a new quality in the development of the economic system with respect to the Russian industry, specifically: replacement of the non-market sector by the extra-market sector. This particularly implies that enterprises when withdrawing from the non-market sector (due to failure to produce value added and because of surrogate relationships with business partners) are rapidly moving into the system of intra-corporate relations established between major integrated structures, and not into the open market system.

Thus, the survey has proven that in absolute terms the non-market sector in the Russian industry, as of today, does not tend towards expansion. Moreover, the long-practiced strategy of government support of inefficient enterprises which generally resulted conservation of ineffective forms of industrial management has been overcome.

However, the "slack zone" affecting the negative value added production still exists which is manifested in the weak control over the aggregate debt arrears to the federal and local budgets. Over one third of enterprises (Group I) have a considerable aggregate debt, while at the same time, the total amount of value added is actually withdrawn from them.

The data on the operation of enterprises with regard to the movements thereof leads to a number of valuable conclusions: 1) almost all enterprises of electric energy sector demonstrate non-market behavior, which most likely may be accounted for by the institutional specifics of the industry; (2) it does not seem possible to separate non-market sector as an isolated group of enterprises in other industries only on the basis of dynamic data (comparison of the growth rate); this would require a profound analysis of the value added figures; 3) the continuing "excessive employment" is a significant reason for and a symptom of decreasing efficiency in the Russian industry.

The processes aimed to increase the degree of "rational economic behavior of enterprises" are getting more complicated due to the rapid development of integrated structures in Russian industry, particularly in export oriented sectors. On the one hand, integration into the above structures leads objectively to an increased utilization of production capacities which creates better conditions for the value added generation, on the other, "islands of inefficiency" are continuously preserved within such structures, for the functioning thereof is rational from a certain extra-economic standpoint. It seems possible to state that the transfer of enterprises from non-market to extra-market sector is a trend which has taken root in the country.

4. ANALYSIS OF FINANCIAL AND ECONOMIC CHARACTERISTICS OF ENTERPRISES' ACTIVITY CONDUCTED ON THE BASIS OF STATISTIC REPORTING AND RANDOM SURVEY OF MANAGERS

4.1. ORGANIZATION OF WORK

The first methodological stage of project implementation implied the development of the methodology to calculate the indicators necessary for determining and describing the sample of non-market enterprises, it was also aimed to prepare the tools for questioning managers. The difficulties at this stage were, firstly, related to the fact that certain most significant indicators (for instance gross value added) are generally not calculated by the agencies of the Russian state statistics at the level of enterprises, and therefore, in order to attain the objectives set by the project a whole package of special methodologies was worked out. Secondly, the goals of the project provide for the construction of certain original and non-traditional indicators which could be used as a criterion on the basis of which enterprises could be assigned to non-market sector.

The second informational stage consisted in, firstly, making up the aggregate of statistic information with the selected sampling of industrial enterprises, and secondly, the polling of the chief executives of the above enterprises. The work on both directions was implemented in close cooperation with the Goskomstat of Russia.

The problem we had to face in this particular case related to the confidentiality requirement in use of statistical information under which the Goskomstat has no right to transfer source information on enterprises to anybody. Therefore, the following procedure was applied in forming data bases of primary data:

1. By joint effort, the experts of Goskomstat of Russia and the Higher School of Economics developed the requirements to the sampling of industrial enterprises which should be selected for the survey, and the system of indicators to be included therein.

2. The Goskomstat of Russia experts selected enterprises for the sampling assigning a respective code to each of them. A data base of statistical reporting data on the above enterprises was formed, including data available both for the Central Goskomstat Office in Moscow and the *oblast* committees for statistics.

3. The staff of the oblast committees for statistics conducted a survey of the selected enterprises using the questionnaire developed in the Higher School of Economics.

4. The information which was collected was transferred together with statistical indicators and filled in questionnaires to the Higher School of Economics. The names and regional affiliation of enterprises included into the sampling were not specified, however, the aggregates of statistical data and questionnaires could be easily paralleled due to the conventional code assigned to an enterprise.

The data base created in the above manner, firstly, contains all the necessary information received from various sources and identified with respect to units of observation (industrial enterprises) secondly, meets confidentiality requirements, since it does not have any references either to specific enterprises or even regions.

On the basis of the formed data base, certain indicators were calculated for each of the enterprises in the sampling which served as a criterion for relegating enterprises to different

categories of economic efficiency. Sorted out by the above indicators, enterprises formed three groups for each of which a number of statistical characteristics was calculated. These indicators formed the background for preliminary quantitative analysis.

At the same time, the information received from questionnaires was used as the basis for the analysis of the type of economic behavior. It should be noted that particular attention was given to enterprises which had moved from one category to another (showing an improvement or deterioration of the status thereof) in the course of the survey.

Final conclusions were drawn from the comparison of the results achieved at previous stages.

4.2. SAMPLING OF INDUSTRIAL ENTERPRISES

The quality of the sampling structure is of critical significance for this Project. Therefore, the decision was taken not to use certain data bases (for instance, the Expert Institute data base) since there were grounds to believe that the sampling in them may be biased.

When the sampling was drafted the following requirements were taken into account:

Sectoral representation: The sampling represents enterprises of all major industries (the fuel and energy complex, ferrous and non-ferrous metallurgy, chemical industry, engineering, forestry and wood-working industry, building materials industry, light and food industries). Enterprises of the so-called "other industries" and repair and maintenance engineering enterprises were not taken into account, since it was assumed that the trends in the above industries would not be principally different from those characteristic for the industry at large. The sampling does not include enterprises of defense industry either, since due to the strategic significance thereof and the control of the government their market status may be questioned. The proportion in the selection was determined on the basis of the number of enterprises and the gross value added, the data taken from inter-sectoral balance. As regards industries of a lower level of aggregation (for instance, motor industry, transport engineering, etc.) the representation requirement to them was neglected, for otherwise, it would have been necessary to increase the amount of sampling and the number of those participating in the survey of the regions. which would make it most difficult to meet the confidentiality requirement with respect to statistic information.

Regional representation. Technically the easiest thing to do would be conducting a survey and filling in questionnaires in Moscow, but in this instance the sampling would have obviously been biased. Therefore, 10 regions were selected to participate in the project. Two requirements were to be met in the process.:

1. The sampling of the selected regions was supposed to ensure the participation (with the number required) of enterprises of all sector;

2. The sampling was aimed to cover regions with different degree of economic development and wellbeing or sustainability. The indicator of gross regional product per capita, or rather, the ranking of the region, as compared to others with respect to this particular indicator, was selected as an economic development criterion.

3. Geographic representation (North-South, West-East, the center) was not set as an official criterion, but where possible was taken into account.

Consequently, the following regions were selected:

- Moscow - ranking first in the Russian Federation with respect to the GDP per capita, as of 1998;
- Tumen oblast - ranking 2nd
- Kemerovo oblast - 24th;
- Amur oblast - 26th;
- Belgorod oblast - 32nd;
- Buryatia - 47th;
- Krasnodar krai - 50th;
- Kurgan oblast - 63d;
- Ivanovo oblast - 72nd;
- Republic of Daghestan - 78th.

Thus, the sampling represents enterprises of both the most and the least developed Russian regions, and of regions which are typical in representing specific kinds of industries - mining, metallurgy, engineering, light industry, agricultural and industrial complex which in many ways determine major trends in the development of respective industries.

Size of enterprises. Small enterprises which are too specific to analyze thereof on general grounds were not included into the sampling. Random selection method was used for other enterprises which was aimed to ensure typical representation of enterprises of different scope in the sampling.

Accessability of information. The aggregate of the source statistical information gathered in computer form on the basis of the data from the statistic reporting form 1 - Enterprise.. This form provides for the greater part of the required primary information. The significant advantages thereof are: systematization of data in form of electronic data base accessible directly from the Goskomstat of Russia Central Office and the institutional principle of formation thereof. Availability of data in electronic form simplifies data analysis and allows to avoid inquiries to regional statistic offices. The institutional principle is another significant advantage since most of other reporting forms (for instance form 5-3) are created on the basis of the so-called "pure sectors", that is, homogenous from the aspect of technology production, which inevitably leads to various problems in surveying enterprises as units of primary statistical observation. However, a certain part of primary information which was not included in form 1-Enterprise, and was available only from financial statements was additionally requested from regional offices.

Sufficiency of sampling amount. Proceeding from the above requirements and restrictions, with the account of financial possibilities, the sampling amount was set at approximately one thousand enterprises. This makes up about 5% of the total number of enterprises which regularly submit reporting form 1- Enterprises (except for "other industrial sectors" and maintenance and repair engineering enterprises). From the mathematical standpoint, this amount is sufficient to attain an acceptable level of representation.

In its final form the sampling represents an aggregate of 945 enterprises out of which the share of fuel and energy complex accounts for 84 enterprises, metallurgy -21, chemical industry -27, engineering -290, forest and woodworking -96, building materials industry -

154, light and food industry - 189. The average number of people on the payroll of the above enterprises is 708 people with the average wages of 3,709 rubles per month, average labor productivity (gross value added per employee) - 304 thousand rubles per year. (The above data goes back to 1999. The 1998 sampling covers 942 enterprises).

4.3. SYSTEM OF STATISTICAL INDICATORS AND METHODOLOGY FOR CALCULATIONS

4.3.1. SOURCE INDICATORS

The system of statistical indicators included into the data base is mainly formed with the indicators used in statistical reporting form 1- Enterprise. The following information relating to the below listed indicators was received from it:

1. Own goods shipped and services provided (the VAT and excise duties inclusive) - the total
2. Including own goods shipped and services provided (the VAT and excise duties inclusive) on a retail basis;
3. Own goods shipped and services (the VAT and excise duties exclusive) - the total;
4. Including own goods shipped and services provided (the VAT and excise duties inclusive) on a retail basis;
5. Including goods shipped and services provided by other producers (the VAT and excise duties exclusive) - on a retail basis;
6. Shipped goods acquired from other producers (the VAT and excise duties exclusive);
7. Industrial products manufactured by the enterprise and transferred to the own non-industrial units;
8. Own agricultural produce transferred to the non-agricultural units of the enterprise;
9. Expenses to acquire goods for re-sale;
10. Increase or decrease of stock for re-sale;
11. Expenses to acquire raw materials, materials, fuel and energy to produce and sell products,

    -including - fuel,

    -including - energy
12. Increase or decrease of raw materials, materials, fuel in stock.
13. Works and services provided by other organizations;
14. Payroll costs,
15. Depreciation of the fixed assets,

16. Payments to social funds;

17. Rent;

18. Other expenses related to the production;

19. Cost of processed customer's raw materials,

20. Increase or decrease of the remaining unfinished products manufactured by the enterprise,

21. Investment into new fixed assets;

22. Acquired second-hand fixed assets;

23. Main assets sold,

24. Average payroll

Many of these indicators are of special analytical significance. They include average payroll and payroll costs. Other indicators are valuable because they may be used for the calculation of key indicators which make up the basis for the System of National Accounts (SNA), that is, the production of gross (net) value added and the gross (net) accumulation, as well as specific indicators necessary to identify enterprises either as market or non-market ones. The methodology for calculating such indicators will be described below.

Apart from the above indicators, primary data provided by regional offices (received from annual financial statements drafted, just as form 1-Enterprise, on the basis of the institutional principle) contained information on the following items:

1. accounts receivable;

2. accounts payable - total;

3. including those relating to payments to the budget;

4. data on payments to the federal budget;

5. data on payments to the budgets of subjects of the Russian Federation;

6. data on payments to extra-budgetary funds;

7. data on payments to suppliers and contractors;

8. data on payments on bills and promissory notes;

9. data on credits and loans received;

10. including data on short-term loans;

11. data on profit (loss)

12. data on wage arrears;

13. target-oriented financing and funds from the budget.

4.3.2. STANDARD INDICATORS CALCULATED ON THE BASIS OF SOURCE DATA

In addition to the source data received the following indicators which are of standard nature from the standpoint of statistical methodology (SNA) calculated with respect to each enterprise

gross (net) value added;

labor productivity

4.3.2.1 Gross (net) value added

This indicator is a key one in the present-day economic statistics. The gross domestic product ratio is determined on the basis of the gross value added. GVA is an input for the calculation of labor productivity and many other ratios.

The gross (net) value added ratio measured at the level of an enterprise is a pioneering task. We are not aware of successful attempts of similar calculations for the purpose of analysis. Experimental calculations were made some time in the past and were aimed to show that in principle it was possible to get such indicators and ratios at the level of an enterprise. Hence, we might be the first to have received such results.

The general scheme for calculating the gross value added at the level of an enterprise on the basis of statistic form 1- Enterprise is as follows:

GVA= PRODUCTION of goods and services –INTERIM CONSUMPTION

with

PRODUCTION of goods and services = PRODUCTION of goods + PRODUCTION of services

In its turn,

PRODUCTION of goods =

value of the made-in shipped products

+ increase of the residue of made-in products + increase of the residue of unfinished products

+ cost of made-in products transferred to the non-profile units of the enterprise

+ cost of processed raw materials supplied by the customer

The authors suggest that PRODUCTION of services be understood as proceeds from commercial activity which, in fact, proves to account for the lion share of the services provided. Proceeds from commerce may be conventionally defined as a margin between the sales cost of the goods acquired for re-sale purposes and the cost of purchase of the same goods.

INTERIM CONSUMPTION =

costs to purchase raw materials, materials, fuel, energy + changes in the residue of raw materials, materials and fuel in stock

+ cost of works and services produced by other organizations + rent payment + cost of raw materials supplied by customers

+ part of other expenses related to the production activity. The latter indicator may be determined on the basis of the ratio typical for enterprises of the same profile which is calculated basing on other sources of information.

The method used for the calculation of GVA is undoubtedly conventional to a certain degree. Attention could be drawn to two negative aspects: (1) the above method does not account for the "profit of the holding" which could appear when the residue of ready products are stored for an extended period of time, and this circumstance, under high inflation may distort the actual output and interim consumption values. The Goskomstat introduces relevant adjustments in a centralized manner and at the level of national economy only. 2) The list of market services does not boil down exclusively to commerce. An enterprise, for instance, may provide transport services. There are grounds to believe, however, that the deficiencies noted cannot significantly distort the calculated value of GVA.

We used the GVA ratio in the so-called basic prices. Basic prices are understood as market factory prices less taxes on products (the VAT and Excise duties), but without the extraction of subsidies. This means that GVA evaluated in basic prices reflects the result of the production activity which enterprises may actually dispose of. Such interpretation of GVA allows to avoid the distortion of this indicator which is inevitably related to the manifestations of the subjective factor in the course of taxation and subsidizing of enterprises. The use of the basic prices concept is a standard means recommended by the SNA to be applied in calculations of various indicators at the level of enterprises and industries.

4.3.2.2. Labor productivity

The ratio is calculated as a quotient of GVA in main prices (see above) and the average payroll.

4.3.3 SPECIFIC INDICATORS

The accumulated primary statistical information and calculated standard SNA indicators make it possible to give a comprehensive qualitative evaluation of the status of industrial enterprises included into the sampling. We hold, however, that the above indicators are not sufficient to attain the major objective of our survey, specifically, to define and produce a quantitative description of the non-market sector. Hence, in addition to those analyzed above a number of specific ratios aimed to resolve the issue was calculated. These indicators and ratios include:

- the adjusted gross value added;

- critical aggregate debt;

- the aggregate negative rating (the market "ill-being" index) (the adverse market conditions index).

THE ADJUSTED GVA. This indicator is meant to be understood as GVA in basic prices with a number of additional adjustments aimed to identify the degree to which an enterprise adapts itself to market conditions. The specific adjustments are (1) an adjustment with

respect to subsidies, 2) an adjustment with respect to " work for the stock", 3) an adjustment with respect to "output for the sake of output".

Adjustment 1 is aimed to neutralize the impact of government support provided to enterprises, which is undoubtedly a non-market factor. Unfortunately, we dispose of just a single indicator received from the annual financial statements of enterprises: "target financing and funds received from the budget" which does not allow us to consider in greater detail which specific payments form this value. It is quite possible that certain payment transfers are not subsidies, therefore, from a theoretical standpoint they bear no relation to GVA. However, we thought it possible to make this methodological assumption, since it was important for us to take into account non-market factors in whichever form the latter would be manifested.

Adjustment 2 is received through extracting the value of an increase in the stock of finished products from the overall output. It is assumed that the output of certain products does not at all mean that the products are in demand in the market.

Adjustment 3 is to take into account the excessive growth of the enterprise's receivables. We proceeded from the fact that inability of an enterprises to find solvent buyers of its products indicates that the output is insufficiently oriented towards market requirements. Hence, we extracted from GVA the sum total increase in the receivables which being measured as a percentage to GVA exceeds a certain average level typical for each sector. At the same time, it should be noted that in 1999 the increase in the receivables was negative, therefore, a zero increase was accepted as a "normal" level.

Undoubtedly, all the three adjustments are a deviation from standard approaches to accounting and the system of National Income Accounts, and therefore, cannot claim to be universal. The adjusted GVA indicator was designed by us exclusively to identify the non-market sector, it is meant to be understood in this very context and cannot be used for any other purposes.

CRITICAL AGGREGATE DEBT. In the present-day situation enterprises cannot function without having some accounts payable. Moreover, under specific Russian economic conditions, a certain amount of payables does not necessarily mean that an enterprise is in distress. It could be maintained, however, that the level of the overdue accounts payable which exceeds a certain critical level is evidence of serious financial problems, or in other words, it suggests that an enterprise is incapable of performing its obligations to the partners. As an indicator of critical aggregate debt we accepted the sum total of accounts payable overdue and the debt arrears if the latter exceeds the 18-month level of GVA production.

AGGREGATE NEGATIVE RATING (ADVERSE MARKET CONDITIONS INDEX). The above statistical indicators are significant indicators characterizing the market sustainability of an enterprise. At the same time, each of the above indicators taken separately cannot be regarded as an unconditional proof of a non-market type of economic behavior of a company. Specifically, a young and dynamically developing enterprise may have considerable debts which could be interpreted as a prerequisite for drastic changes in future. However, if several indicators listed above as criteria for the economic status of an enterprise are negative, the error becomes less probable.

Proceeding from the above rationale we introduced an indicator of aggregate negative rating which conventionally was named the "*market adverse conditions index"*. The indicators to be accounted for as indicators in the rating are:

- the negative adjusted GVA;

- the critical aggregate debt.

These particular indicators or criteria of market adverse conditions were selected on the grounds explained below.

The negative adjusted value added shown by an enterprise during the period under review means that the value of the goods and services produced and sold by an enterprise (without the account of government support) is not sufficient to compensate for the value of raw materials, materials and services which were used in the production process, neither is it sufficient for paying taxes on products.

The critical aggregate debt means that the financial status of an enterprise over the period under review was unsatisfactory.

The aggregate negative rating calculated on the basis of the above indicators may, in our opinion, serve as a criterion for including enterprises into the "non-market" sector of the economy.

Having calculated the rating of all the enterprises in the sampling we divided the aggregate into the following three groups:

1. "Sustainable" enterprises with a zero negative rating. The group covers enterprises producing sufficient value added to fulfill the obligations thereof to employees, owners and the government, and avoid excessive debts.

2. "Problem" enterprises with the aggregate negative rating equaling 1. This group (hereinafter, group A) includes enterprises which showed a negative result in one of the qualification characteristics. The conclusion being drawn on the basis of statistical information only, enterprises of this group failed to react efficiently to the demands of the market.

2. "Decaying" enterprises having the negative rating of 2. Enterprises falling into this group face dramatic market problems.

4.4. BRIEF INTERPRETATION OF STATISTICAL RESULTS

Having calculated the above indicators on the basis of 1998 and 1999 data, the authors obtained the following results:.

With respect to criteria:

- gross value added (positive or negative),
- adjusted value added (positive or negative),
- critical aggregate debt (higher or lower than the level of gross value added production shown during 18 months).

The sampling splits up into two classes (market and non-market) regarding each particular instance:

Table 1

Sampling structure in accordance with the selected criteria (in % to the number of enterprises in the sampling)

With respect to	Market sector		Non-market sector	
	1998	1999	1998	1999
	criterion– gross value added			
number of enterprises	84,2	95,8	15,8	4,2
employment	83,9	97,6	16,1	2,4
	criterion- adjusted value added			
number of enterprises	81,8	89,8	18,2	10,2
employment	83,05	95,2	16,9	4,8
	criterion - critical debt			
number of enterprises	67,8	71,0	32,2	29,0
employment	61,8	75,1	38,2	43,6

As follows from the results received the market sector with respect to each criterion analyzed increased in 1999, as compared to 1998. Since the figures for 2000 showed that the achievements in the Russian economy exceeded those of 1999, there are grounds to believe that when the statistical data for 2000 on enterprises included into the above sampling is analyzed, the share of the market sector will increase with respect to each of the selected criteria.

It is noteworthy that though the share of the market sector goes down with the adjustment of the gross value [added] the structure of the aggregate value added actually remains the same.

Table 2

Volume and structure of value added calculated on the basis of the sampling data

Gross value added				
	Nominal, in rubles		Structure	
	1998	1999	1998	1999
Total	94,715,277.07	16,929,4661.12	100.00	100.00
Fuel and energy complex	75,366,940.36	130,976,914.38	79.57	77.37
Ferrous and non-ferrous metallurgy	5,777,929.40	12,949,422.06	6.10	7.65
Chemical industry	367,449.30	901,012.50	0.39	0.53

Engineering	4,589,713.56	8,112,685.31	4.85	4.79
Forest and woodworking industry	665,466.16	1,321,417.41	0.70	0.78
Building materials industry	1,126,947.42	1,820,822.10	1.19	1.08
Light industry	895,359.40	1,981,658.70	0.95	1.17
Food industry	5,925,471.48	11,230,728.66	6.26	6.63
Adjusted gross value added				
	Nominal, in rubles		Structure	
	1998	1999	1998	1999
Total	91,091,398.09	**153,788,157.68**	100.00	100.00
Fuel and energy complex	72,892,726.38	**117,830,541.38**	80.02	76.62
Ferrous and non-ferrous metallurgy	5,718,553.40	12,861,022.06	6.28	8.36
Chemical industry	345,738.30	885,514.50	0.38	0.58
Engineering	4,177,062.64	74,08,821.80	4.59	4.82
Forest and woodworking industry	636,557.16	1,203,968.48	0.70	0.78
Building materials industry	1,084,365.42	1,668,643.10	1.19	1.09
Light industry	811,169.40	1,102,278.70	0.89	0.72
Food industry	5,425,225.40	10,827,367.66	5.96	7.04

In accordance with the aggregate adverse market conditions index the sampling was split up into the following sub-categories:

Table 3

Structure of the sampling (in % to the total number of enterprises in the sampling)

with respect to:	1998	1999
Sustainable enterprises		
Number of enterprises	62.2	68.8
Employment	59.7	74.0
Enterprises with at least one “critical”(negative) characteristic (category A)		
Number of enterprises	37.8	31.2

Employment	40.3	26.0
Out of this category: "decaying" enterprises(with both "negative" characteristics)		
number of enterprises	12.5	7.9
employment	14.9	3.6

Thus, by 1999, the scope of the non-market sector with respect to two selected criteria had gone down to 31.2% of the total number of enterprises in the sampling and to 26.6% of the total number of the employed engaged at enterprises under review. Enterprises whose status is described as critical ("decaying" enterprises) made up less than 8% of the sampling number of enterprises in 1999, and no more than 4% of the employed in the analyzed aggregate data.

The results unfortunately are not very indicative of the situation in the sectors, particularly in metallurgy and chemistry, due to a rather small number of enterprises in the sampling from these industries. It could be noted, however, that the percentage of "sustainable" enterprises is fairly high: 81% - in ferrous and non-ferrous metallurgy in 1998-1999, food industry - 70.4% in 1998 and almost 79% in 1999 (quite likely due to the output by enterprises of alcoholic beverage industry), building materials industry - over 70% in 1998-1999 and, vice versa, a high percentage of "decaying" enterprises in the fuel and energy complex - 22.6% in 1998-1998.

Sectoral distribution of enterprises of different categories had changed to a certain degree. Fuel and energy complex ranks lowest with respect to the proportion between the number of "sustainable" and "decaying" enterprises (5.0 and 8.7 in 1998 and 1999 respectively). Engineering ranks first (6.8 and 13.9), food industry - second (5.5 and 13.5), with the chemical industry to follow (6.0 and 10.0).

When the average aggregate adverse market conditions index (market "ill-being" index) was calculated with respect to each sector represented in the sampling, the movements thereof proved to be as follows:

Table 4

The average aggregate negative rating of enterprises

«ADVERSE MARKET CONDITIONS INDEX" (MARKET ILL-BEING INDEX)

	1998	1999	Change of indicator in absolute terms	Change of indicator in relative terms
Fuel and energy complex	0,75	0,77	0,02	3,08
Ferrous and non-ferrous metallurgy	0,33	0,29	-0,05	-16,67
Chemical industry	0,44	0,33	-0,11	-33,33
Engineering	0,46	0,33	-0,13	-38,45

Forest and woodworking industry	0,54	0,46	-0,08	-18,18
Building materials industry	0,39	0,37	-0,02	-6,45
Light industry	0,62	0,44	-0,18	-40,62
Food industry	0,42	0,27	-0,15	-56,86
Total figure with respect to the sampling	***0,50***	***0,39***	***-0,11***	***-28,52***

As follows from Table 4, the negative rating of industrial enterprises equals 0.45 on the average, which means that generally an enterprise fails to meet less than one market efficiency criterion. Enterprises of metallurgy and food industry are in a better situation, which could be accounted for by a huge export potential of the prior sector and the sustainable domestic demand for the products of the latter. The low indicators illustrating the status of the fuel and energy complex somewhat run contrary to the traditional views on the situation in this sector. Albeit, apart from the highly profitable oil and gas sector, the industry also includes coal, peat, shale production, which undoubtedly has a negative effect on the resulting figures. Furthermore, in some regions failures of energy supply occur regularly which is evidence of serious problems in electric energy sector.

Over the year the average negative rating had considerably gone down. This could be observed in all industries, but for the fuel and energy sector, where the situation had deteriorated regarding the selected criteria.

Table 5

Average labor productivity

(based on the adjusted value added, the average figure for enterprises)

	average figures for enterprises			with respect to the average indicators in the sampling	
	1998	1999	рост	1998	1999
Total	55.96	89.08	159.18	100.00	100.00
Fuel and energy complex	214.59	162.99	75.95	383.47	182.97
Ferrous and non-ferrous metallurgy	89.16	147.43	165.36	159.32	165.50
Chemical industry	35.58	156.94	441.07	63.59	176.18
Engineering	35.44	88.21	248.92	63.33	99.02
Forest and woodworking industry	26.76	40.18	150.16	47.82	45.11
Building materials industry	61.17	70.25	114.85	109.31	78.86

Light industry	21.21	42.43	200.05	37.90	47.63
Food industry	56.60	112.60	198.94	101.15	126.41
				0.00	0.00
Sustainable enterprises	94.54	135.62	143.44	168.95	152.24
Group A	-	-	-		

Calculations of labor productivity per person show that sustainable enterprises are characterized by indicators exceeding the average ones in the sampling, specifically 69% and 52% respectively. No indicators were calculated in relation to "decaying" enterprises and companies of group A, for the aggregate value added is negative with respect to the above two groups. The decreasing gap between the labor productivity of sustainable enterprises and the average indicator based on the sampling is accounted for by the fact that labor productivity increased at enterprises included into other groups too, but the problems which had accumulated (for instance, the critical aggregate debt) made it impossible for the enterprises to move to the group of successfully developing enterprises within just one year.

Average number of employees on the payroll (at the enterprises included into the sampling)			
	average for enterprisesв		
	1998	**1999**	**рост**
Total	606,50	586,53	96,71
Fuel and energy complex	2371,01	2431,45	102,55
Ferrous and non-ferrous metallurgy	1826,90	1851,43	101,34
Chemical industry	321,33	302,41	94,11
Engineering	548,84	501,38	91,35
Forest and woodworking industry	231,41	208,41	90,06
Building materials industry	291,27	287,27	98,63
Light industry	347,53	321,99	92,65
Food industry	355,52	356,49	100,27
Sustainable enterprises	***581,62***	***629,15***	***108,17***

Average monthly wages, average figure for enterprises			
	average for enterprises		
	1998	**1999**	**рост**
Total	1,428.15	2,614.70	183.08
Fuel and energy complex	2,523.77	4,348.97	172.32
Ferrous and non-ferrous metallurgy	1,870.54	2,918.70	156.04
Chemical industry	1,676.49	4,652.15	277.49
Engineering	1,353.09	2,562.41	189.37
Forest and woodworking industry	1,220.05	1,899.50	155.69
Building materials industry	1,423.70	2,745.86	192.87
Light industry	887.44	1,833.16	206.57
Food industry	1512.15	2541.11	168.05
Sustainable enterprises	**1,509.02**	**2,783.37**	**184.45**
Group A	**1,310.84**	**1,782.89**	**136.01**
"Decaying" enterprises	**1,303.54**	**2,243.07**	**172.08**

4.5. BRIEF INTERPRETATION OF THE RESULTS OF THE QUESTIONNAIRES

The results of Russia's economic development in 2000 are a convincing evidence that along with economic growth settlements in the country have become monetized. The share of various forms of non-money settlements and money substitutes has considerably gone down (See Table 6).

Table 6

Structure of payments of enterprises for delivered products in late 1998 and late 2000

Forms of settlements	Late 1998	Late 2000
On a debt basis	26.5	23.4
Money settlements	52.0	62.0
Including settlements via banks	46.0	57.4
Barter	35.3	24.1
Off-sets	31.9	25.3
Veksels (bills and promissory notes)	9.7	13.2

Apart from a noticeable decrease of barter settlements (almost by 40%), one should emphasize the positive role of the post 1998 crisis recovery of the cash and settlement functions of the banking system. The share of settlements exercised via banks had reached 57.4% of the total number of payments by the late 2000.

With regard to specific sectors, the settlement structure of enterprises, as of late 2000, was as shown in the table:

Table 7

Structure of settlements of enterprises in late 1998 and late 2000 with respect to sectors

Sector	**Forms of settlements**	**Late 1998**	**Late 2000**
Fuel and energy complex	On a debt basis	42.3	23.3
	Money settlements	29.9	50.6
	Including settlements via banks	30.9	48.4
	Barter	32.4	25.8
	Off-sets	45.8	30.2
	Veksels (bills and promissory notes)	6.5	16.0
Metallurgy	On a debt basis	21.3	23.7

	Money settlements	52.1	74.2
	Including settlements via banks	43.3	67.1
	Barter	22.1	16.7
	Off-sets	24.5	17.8
	Veksels (bills and promissory notes)	11.8	10.0
Chemical industry	On a debt basis	13.3	16.8
	Money settlements	72.7	79.5
	Including settlements via banks	64.8	70.2
	Barter	38.9	15.3
	Off-sets	16.3	26.6
	Veksels (bills and promissory notes)	3.7	8.3
Engineering	On a debt basis	20.7	19.3
	Money settlements	47.6	61.8
	Including settlements via banks	50.6	61.0
	Barter	37.3	23.7
	Off-sets	30.7	24.5
	Veksels (bills and promissory notes)	11.5	14.7
Forest and woodworking	On a debt basis	24.8	27.8
	Money settlements	42.5	56.1
	Including settlements via banks	36.6	50.1
	Barter	34.4	25.7
	Off-sets	33.3	26.4
	Veksels (bills and promissory notes)	11.8	12.4
Construction industry	On a debt basis	17.7	25.3
	Money settlements	45.2	53.2

	Including settlements via banks	29.1	43.5
	Barter	35.8	25.0
	Off-sets	33.9	28.3
	Veksels (bills and promissory notes)	6.8	10.3
Light industry	On a debt basis	37.6	32.5
	Money settlements	58.7	68.0
	Including settlements via banks	41.6	61.6
	Barter	37.4	26.5
	Off-sets	34.4	26.7
	Veksels (bills and promissory notes)	9.5	8.1
Food industry	On a debt basis	27.2	22.0
	Money settlements	59.6	68.0
	Including settlements via banks	48.1	57.8
	Barter	34.1	24.2
	Off-sets	23.8	20.3
	Veksels (bills and promissory notes)	11.2	13.0

A more profound analysis would allow us to identify a number of interdependencies between the share of barter settlements and other economic and institutional factors.

4.5.1. PRICE RATIO UNDER BARTER AND MONEY SETTLEMENTS

So far no drastic changes have taken place with respect to price ration under barter and money settlements. (see Table 8).

Table 8

Price ratio under barter and money settlements

in end-year 1998 and end-year 2000

Price ratio (%% enterprise)	1998	2000
No difference	44.9	51.9

Higher (up to 30%)	40.8	33.7
Higher by 30-50%	5.4	5.1

Overpricing under barter continues to exert a negative effect on the economic status of enterprises, depriving the latter of development funds. Hence, the objective is to analyze the degree to which barter settlements influence the movements in the economic status of enterprises.

4.5.2. BARTER IMPACT ON THE PROCESSES OF VALUE ADDED PRODUCTION

Barter is yet continues to impact the processes of value added production. On the one hand, successful companies manage to cut down the share of barter payments in the structure of settlements for the delivered products. On the other hand price difference between barter and cash settlements is more noticeable in instances of successfully operating enterprises. This means that barter is yet exerting pressure on the processes of value added production, which is particularly obvious at sustainable companies.

Table 9.

Share of barter settlements and the price ratio between cash and barter deliveries at enterprises with a different economic status

Economic status in respective year	Barter Share in 1998	Price difference in 1998	Barter share in 2000	Price difference in 2000 г.
Poor	38.0	20-30%	32.6	20-30%
Satisfactory	35.3	20-30%	20.7	15-25%
Good	28.3	15-25%	19.2	25-35%

The above figures raise the issue on whether non-cash settlements impact the processes of value added production. Upon the results of the enterprises financial statements analysis, three groups were formed on the basis of the level of adjusted value added indicator, net accumulation and the level of critical debt.

Table 10

Proportion between the barter share and prices for products delivered on the basis of barter and cash settlements by groups of enterprises

Group of enterprises selected on the basis of economic indicators	**Share of barter settlements in % in 2000**	**Codified ratio between the barter level and cash settlements**
Sustainable enterprises	23.09	1.32
Group A	26.62	1.65

“decaying” enterprises	25.99	1.66

As the results of Table 10 show, sustainable companies resort to barter settlements somewhat less frequently than other categories of enterprises. In most cases (over 66% of enterprises in the respective sub-group) prices for products do not differ depending on whether it is barter or cash settlement, at the same time, 42% of Group A enterprises reported the fact.

4.5.3. BARTER ACTIVITY AND CRIDITING OF ENTERPRISES

The results provided in Table 11 suggest that today the economic status of enterprises is not a decisive factor for banks in furnishing loans to enterprises.

Table 11

Availability of bank loans (in % of the number of enterprises in the group)

	Loans provided without any problems	Difficult to receive	Actually impossible to receive
Total	17.66	55.41	26.93
Fuel and energy complex	20.51	53.85	25.64
Ferrous and non-ferrous metallurgy	63.64	18.18	18.18
Chemical industry	26.67	26.67	46.67
Engineering	19.33	57.33	23.33
Forest and woodworking industry	11.11	55.56	33.33
Building materials industry	12.77	51.06	36.17
Light industry	7.81	51.56	40.63
Food industry	18.68	67.03	14.29
Sustainable enterprises	22.14	60.36	20.36
Group A	10.91	49.70	39.39
"Decaying" enterprises	14.29	51.02	34.69

It is remarkable that less than 18% of all the respondents to the question about the availability of loans to enterprises (453 companies) answered that they had no problems in getting loans. Over 55 % of companies were having serious difficulties with crediting and

27% believed that it was not actually possible. It also seems of interest that similar distribution of answers is observed in all the three qualification groups of enterprises. Specifically, over 20 % of sustainable enterprises recognized that for them loans are actually unavailable, while 14.3% of "decaying" companies stated that they receive loans with no problems at all.

Obviously, weak protection of rights of owners and lack of transparency in the real sector does not allow fairly sustainable enterprises to receive loans on acceptable terms. The loan interest reflecting risks of capital investments into the economy of Russia and the level of the profit tax rate for banking institutions is too high for the dominating part of enterprises, which in its turn is evidence of the low profitability thereof. Availability of loans for certain "decaying" enterprises allows to suggest that a certain adjustment of the non-market has occurred in the economy of Russia, when through subsidies and preferences received mainly as state assistance under unequal competition, the above category of companies may engage in business activity without having to raise economic efficiency.

4.5.4. BARTER SETTLEMENTS AND "MESO-ECONOMIC" POLICY

The national economy of Russia is now living through the time when barter settlements are actively replaced by measures of "meso-economic" policy.

Up to this point we have been analyzing enterprises as isolated economic agents related to one another exclusively via the market. At the same time it is common knowledge that a considerable part of Russian industry i9s already "built-in" into either formal or non-formal major integrated business structures. The influence of such structures at a micro level can be seen in the results of our survey. First and foremost, almost 40% of the executive officers which participated in the survey would not deny the involvement of their enterprise either in a formal or non-formal group which coordinates the actions of enterprises -members thereof.

Table 12

Independence in the actions of companies

	Independent actions	Informal group affiliation	Member of major group	member of a group with everyday activities under control
Total	64.09	12.47	10.54	12.90
Fuel and energy complex	18.42	15.79	15.79	50.00
Ferrous and non-ferrous metallurgy	53.85	15.38	23.08	7.69
Chemical industry	72.22	5.56	16.67	5.56
Engineering	68.67	12.67	8.67	10.00
Forest and woodworking industry	68.42	10.53	10.53	10.53

Building materials industry	75.00	12.50	10.42	2.08
Light industry	72.50	7.50	10.00	10.00
Food industry	60.00	17.50	8.75	13.75
Sustainable enterprises	66.90	13.59	11.50	11.85
Group A	63.47	11.38	9.58	15.57
"Decaying" enterprises	67.92	5.66	9.43	16.98

Furthermore, the comparison of the levels of barter deliveries in different groups of enterprises formed in accordance with the degree of independence in the actions thereof lead to the following conclusion: companies whose future and current activity was controlled by another major business structure have a considerably lower of barter deliveries.

Table 13

Level of barter deliveries at enterprises with various degrees of coordination of the activity thereof with other business structures

Degree of the company's independence	% of barter operations
The company is acts absolutely independently	23.9
The company is member of informal group coordinating some the company's activities	27.3
The company is an integral part of a major business structure determining the company's future development	25.5
The company is an integral part of a major business structure determining both the company's future development and the current activity	18.3

4.6. COMPARISON OF STATISTICAL RESULTS WITH THE RESULTS OF THE SURVEY (ON THE BASIS OF QUESTIONNAIRES) REGARDING FINANCIAL AND BUSINESS ACTIVITY OF ENTERPRISES

In order to compare the results of the survey conducted with respect to the market and non-market sub-aggregates of the sampling (sustainable enterprises, group A including "decaying enterprises, respectively), we split up enterprises into the following categories in accordance with the performance thereof in 1998.

It follows from the results of the survey provided in Table 14 that over 9% of "decaying" enterprises considered the status thereof in late 2000 fairly sustainable. Almost 30 enterprises making up the "decaying" enterprises group stated reported an increase in the number of employees on the payroll in industry and production between 1998 and 2000.

It should be noted however that actually in all groups and industries a trend to positively assess the movements of overall economic situation at enterprises between 1998 and 2000 is observed. On the whole, approximately20% of businesses see the situation as unfavorable, over 67% as satisfactory and 11.5% as favorable.

Table 14

Economic status of enterprises general assessment

	before 1998 crisis			end-year 2000		
	negative	**satisfactory**	**positive**	**negative**	**satisfactory**	**positive**
Total	34.43	51.02	14.55	20.70	67.62	11.48
Fuel and energy complex	23.81	57.14	19.05	28.57	61.90	9.52
Ferrous and non-ferrous metallurgy	46.15	46.15	7.69	15.38	61.54	23.08
Chemical industry	44.4	50.0	5.6	16.7	83.3	0.00
Engineering	36.31	52.23	11.46	17.20	70.06	12.10
Forest and woodworking industry	27.03	54.05	18.92	29.73	56.76	13.51
Building materials industry	30.77	53.85	15.38	23.08	69.23	7.69
Light industry	51.76	41.18	7.06	17.65	76.47	5.88
Food industry	20.24	53.57	26.19	22.62	58.33	19.05
Sustainable enterprises	28.39	53.94	17.67	16.40	71.29	12.30
Group A	45.61	45.61	8.77	47.37	45.61	7.02
"Decaying" enterprises	44.44	50.00	5.56	27.78	61.11	9.26

In order to confirm the estimates thereof, most enterprises stated an increase of production capacities utilization (over 60% of enterprises utilized the capacities thereof for over 50%, while prior to 1998 crisis only 50% of enterprises assessed the their activity in a similar way). Non-market sector enterprises (Group A and “decaying” enterprises included into it) reported a lower capacity utilization than the average figure in the sampling: approximately half of the group A enterprises is operating at less than 50% of their capacity. On the one hand this is evidence of the low competitiveness of such businesses and insufficient demand for the products thereof. On the other, -it means

that a whole aggregate of former soviet enterprises is yet functioning and over the past decade they have failed to upgrade their production capacities and adjust the assets to the demands of the market.

Over the past two years the output volume of almost 60% of companies included into the sampling has increased, 36% of enterprises have increased their output by over 20%. It should be noted in this connection that if in those sectors which are operating at export markets a trend towards the growth of production is on the whole dominating, in food industry linked closely to the home market there is a redistribution of commodity markets between the enterprises of the sector: the share of enterprises which reported the same output volume at a sustainable level reached 10%, the share of enterprises having increased the output is 50%, of those having decreased the volume amounted to 40%.

Table 15

Production capacity utilization ratio

	prior to1998			end-year 2000		
	up to 50%	50-80%	over 80%	up to 50%	50-80%	over 80%
Total	49.70	36.44	13.86	38.81	43.37	17.62
Sustainable enterprises	43.69	40.00	16.31	33.23	47.08	19.69
Group A	60.56	30.00	9.44	48.89	36.67	13.89
"Decaying" enterprises	60.71	30.36	8.93	55.36	32.14	10.71

Table16

Changes in the output volume over the past 2 years

	Has gone down by over 20%	Has gone down by less than 20% 50-80%	Has remained unchanged более 80%	Has grown up to 20% до 50%	Has grown by over 20% до 50%
Total	15.34	9.36	15.54	23.71	36.06
Fuel and energy complex	13.95	13.95	27.91	27.91	16.28
Ferrous and non-ferrous metallurgy	7.69	7.69	0.00	46.15	38.46
Chemical industry	11.11	5.56	5.56	33.33	44.44
Engineering	9.26	4.32	16.05	24.69	45.68

Forest and woodworking industry	20.51	2.56	15.38	20.51	41.03
Building materials industry	19.61	11.76	17.65	23.53	27.45
Light industry	17.65	9.41	17.65	16.47	38.82
Food industry	21.98	18.68	9.89	23.08	26.37
Sustainable enterprises	13.08	9.35	15.58	25.86	36.14
Group A	19.34	9.39	15.47	19.89	35.91
"Decaying" enterprises	17.86	7.14	21.43	21.43	32.14

It is noteworthy that about half of enterprises in answering the question about the consumer attitude towards the products manufactured thereby as compared to imported goods responded that they believe that the quality of their products is by no means lower than that of imported analogues (335 enterprises were responding) and over 33% believed that the products were even of a better quality. Only 16% of the respondents gave priority to imported goods. In the “sustainable” enterprises group 15% recognized that imported goods imported goods are more attractive for consumers, in Group A - 19%. About 48% (over 30 units) of decaying enterprises are convinced that the products thereof are not worse than those imported, while 27% are of the opinion that their consumer foods are more appealing to the buyers. In food industry the responses given were even more in favor of home production: over 78% of respondents believe that their products are preferable to western analogues, about 17% agreed that both the import an home-made products are equally appealing to consumers, while only 4% admitted that imported products are of better quality. A similar situation is observed in export oriented metallurgy.

Table 17

Assessment of enterprises of the consumer attitude towards the production thereof as compared to imported products

	Imported products are preferred	same attitude towards imported and home-made products	In-made products are preferable
Total	16,42	49,85	33,73
Fuel and energy complex	7,69	53,85	38,46

Ferrous and non-ferrous metallurgy	16,67	16,67	66,67
Chemical industry	6,67	86,67	6,67
Engineering	20,54	63,39	16,07
Forest and woodworking industry	27,59	51,72	20,69
Building materials industry	21,43	53,57	25,00
Light industry	21,05	56,14	22,81
Food industry	4,00	17,33	78,67
Sustainable enterprises	15,00	49,09	35,91
Group A	19,13	51,30	29,57
"Decaying" enterprises	24,32	48,65	27,03

Most likely, such optimistic evaluations made by enterprises of the competitiveness of their products with the imported ones may be accounted for by the fact that they are selling their goods in the home market where competition is not equal for all the participants and many enterprises (particularly Russian ones) are protected by the government policy. Less than 15% enterprises export 20% and over abroad, while for 69% of companies the share of export is less than 5%. (it should be added that the response to this answer was given by less than 20% of enterprises in the sampling (very limited responses were given by enterprises forest industry, building materials industry, light industry, fuel and energy complex, food industry); hence, the assessments may be not quite reliable).

When asked about the relationships with regional and local authorities, enterprise respond that they are trying to keep at a certain distance in relations with them. About 13% of the respondents said that the authorities provide assistance to them on a regular basis, about 2 percent are in a profound conflict with government agencies, the remaining 85% either experience no interference on the part of authorities, or the relationships are quite sporadic. At the same time, over 40% of businesses stated that local authorities sometimes provided assistance to them, which allows to draw a conclusion about the protectionist policy of the authorities.

Table 18

Relationships with regional and local authorities

	assistance on a regular basis	sporadic assistance	No relations	periodic interference	profound conflict

Total	13.41	40.66	37.14	6.15	2.42
Fuel and energy complex	26.19	28.57	26.19	11.90	7.14
Ferrous and non-ferrous metallurgy	16.67	50.00	33.33	0.00	0.00
Chemical industry	28.57	35.71	35.71	0.00	0.00
Engineering	8.78	41.89	43.92	3.38	2.03
Forest and woodworking industry	10.53	39.47	39.47	2.63	7.89
Building materials industry	10.00	36.00	42.00	8.00	2.00
Light industry	12.16	39.19	33.78	14.86	0.00
Food industry	16.88	49.35	29.87	2.60	1.30
Sustainable enterprises	13.84	39.10	39.10	6.23	1.38
Group A	12.65	43.37	33.73	6.02	4.22
"Decaying" enterprises	11.11	42.59	31.48	11.11	3.70

Thus, the non-market sector measured on the basis of the two criteria - the amount of the adjusted value added and critical debt - makes up approximately 30% of the to total number of enterprises, upon the results of 1999, while the “decaying” enterprises comprised approximately 8%. The combined analysis of statistical data and the results of the survey of enterprises based on questionnaires allows to draw a maintain that the economic criteria have not yet become decisive for all economic agents in the process of taking managerial and other decisions related to the functioning of enterprises. However, to be able to state such facts with absolute assuredness it is necessary to conduct a more profound analysis of the questionnaires. The next section of the report goes deeper into this particular issue.

5. INTEGRATED ASSESSMENT OF FACTORS AFFECTING ADDED VALUE PRODUCTION BY RUSSIAN INDUSTRIES AS IDENTIFIED THROUGH INTERVIEWS WITH COMPANY MANAGERS

5.1. SECTION 1. METHODOLOGY OF IDENTIFYING FACTORS AFFECTING ADDED VALUE PRODUCTION

This project is focused on the identification and analysis of such groups of factors as may affect the conditions of added value production and redistribution. Identification of groups of such significant factors should help create an objective picture of the processes involved in the generation of added value in the short run, with a breakdown by industries and by regions of the Russian Federation, and lay a requisite foundation for a system of measures of

the state economic policy aimed at stepping up the national income growth rate (i.e. the macroeconomic expression of added value generated by national economy).

5.1.1. PRELIMINARY IDENTIFICATION OF FACTORS AFFECTING ADDED VALUE PRODUCTION (REDISTRIBUTION) ON A COMPANY LEVEL

The production of added value is a consequence of the production of goods and services demanded by (or imposed on) a market at prices exceeding, or at least equal to, the cost of factor inputs. Under this approach, factors affecting added value production and redistribution may be divided into the following groups:

Group 1 - technological conditions for added value production

Group 2 - transaction terms and conditions for added value production and redistribution

Group 3 - institutional conditions for added value redistribution

Group 4 - innovative factors of added value production and redistribution.

The principal technological conditions (Group 1) include:

- The capacity utilization rate;
- Capacity optimization (disposal or leasing out of redundant equipment and plant space), acquisition or leasing of additionally required equipment or plant space.

It is assumed that a high capacity utilization rate combined with a high mobility of nominal capacity positively relate to the added value production.

The principal transaction factor (Group 2) of added value production and redistribution is

- The share of cash payments in the economic turnover.

It is assumed that the growing share of cash payments in a company's business turnover positively affects the production of added value due to the reduction of added value transaction costs within the cash settlement system (in contrast to barter transactions, off-sets and etc.).

The principal institutional conditions (Group 3) include:

- The degree of a company's participation in formal or informal integrated structures;
- The form of interaction with local authorities adopted by the company management.

In the context of the fast-going property redistribution processes in Russia, a company's involvement in some integrated structure may hint at the company's additional capacity for added value generation (and, consequently, for its redistribution).

Innovative factors (Group 4) stand out against the other factors accompanying the production of added value. **Such innovations as the manufacture of distinctively new product items, introduction of new accounting and planning procedures, or development of new personnel management schemes, while showing no direct effect on the net asset growth, may intensify added value production on a long-term basis.**

5.1.2. REVIEW OF FACTORS AFFECTING ADDED VALUE PRODUCTION BASED ON COMPANY CLASSIFICATION

5.1.2.1. Company classification procedure

The research has yielded economic performance data on 947 companies, and a special sociological survey has additionally provided data on another 512 companies (52%). Further investigation involves a comparative analysis of the above survey data and available economic performance information about 512 companies. The analysis of the economic performance data has helped identify the following four classification indices:

- The production of negative or adjusted positive added value;
- Operating loss (operating profit);
- Total debts of a company (below or above the critical amount);
- Positive (negative) net capital gains.

Basing on the aforementioned class indices, all companies have been classified as follows:

Group 1 - companies with negative net capital gains, operating losses, a heavy share of debts, a low positive or negative added value production.

Group 2 - added value generating companies with negative net capital gains but with minimal operating losses and critical debts.

Group 3 - added value generating companies with positive net capital gains, operating profit and no critical debts.

The final classification of the sampled 512 companies looks as follows:

Group 1 (problem companies) - 177 (34.6%) of all sampled companies;

Group 2 (average companies) - 223 (43.6%) of all sampled companies;

Group 3 (effective companies) - 112 (21.7%) of all sampled companies.

5.1.2.2. General economic status of companies within identified groups

Prior to performing a detailed analysis of the questionnaires filled out by company executives, the researchers carried out a general comparative analysis of companies within the identified groups basing on a number of economic indices, and a comparative analysis of senior managers' responses to key questions. Such comparative analysis was aimed to confirm the stability of the proposed company classification, to help establish certain specifics of the economic status of companies within the identified groups, and to verify the reliability of responses provided by the respondent company managers.

The comparative analysis established that *companies comprising Group 1 and 2 significantly differ from those included in Group 3 by the number of employees* (367, 387 and 1270 employees respectively); by the Duncan criterion the difference of Group 3 from Groups 1 and 2 is less than 0.05%. *This ratio required standardization of the economic variables on the basis of the employment rate.* Consequently, all the identified company groups were subjected to a comparative analysis basing on the following parameters:

- Average wages;
- Rate of added value per employee;
- Rate of tax burden per employee;
- Rate of federal tax liabilities per employee;
- Rate of local tax liabilities per employee;
- Rate of extra-budgetary liabilities per employee;
- Rate of state financial support per employee.

This analysis was complemented by a comparative analysis of responses submitted by company managers to the following question: "The subjective assessment of the economic status of their respective enterprises in 2001".

Table 19

A comparative analysis of companies within the identified groups basing on specific economic parameters

Assessment parameters	Group 1	Group 2	Group 3
Average wage (Rubles per month)	2,063.90[3*]	2,669.95	3,272.94
Labor productivity (thousand rubles per year)	29.150[2,3]	130.033[1,3]	215.859[1,2]
Average amount of state support per employee (thousand rubles per year)	2.88[3]	0.69	7.82
Average rate of tax burden per employee (thousand rubles per year)	28.58[3]	74.78	91.28
Average rate of federal tax liabilities per employee (thousand rubles per year)	17.32	11.15	10.96
Average rate of local tax liabilities per employee (thousand rubles per year)	9.17[2,3]	2.70	3.95
Average rate of extra-budgetary liabilities per employee (thousand rubles per year)	27.74[2,3]	14.54	6.13

∗ The index of statistically significant difference (with a 95% probability) on the basis of the Duncan criterion.

The identified groups of companies actually show statistically significant differences by most of the specified parameters. First and foremost, the statistically significant difference (with a 95% probability by the Duncan criterion) is observed in the rate of added value produced per employee - respectively 29, 130 and 215 thousand rubles per year.

The second significant parameter - the rate of tax burden per employee - demonstrates two important characteristics:

Formally, the tax burden of effective companies (Group 3) considerably exceeds the values of same parameter for Group 2 and especially for Group 1 (respectively 91, 74 and 29 thousand rubles per year per employee). Given the spread in parameter values within each group, it is possible to assert that the tax burden within Group 3 significantly (with a 95% probability by the Duncan criterion) surpasses the tax burden of companies within Group 1.

At the same time, the actual tax burden on companies within Group 1 is immeasurably heavier. These companies virtually lose in the way of taxes the entire added value (the difference between specific added value and the tax burden is only 200 rubles per year per employee)!

It is worth reminding that added value includes payroll expenses. Despite the fact that arrears in wages represent a form of internal loans to finance the reproduction processes at the workers' expense, the actual wage level is insufficient for bridging such gap.

It is not surprising that companies of Group 1 tend to delay tax payments at all levels. The total accrued taxes for Group 1 approximate 54.2 thousand rubles per employee, almost twice exceeding the annual tax burden. The heaviest tax liabilities (27,7 thousand rubles per employee) fall on extra-budgetary funds[1]. Thus, the emerging reproduction conditions and the taxation regime make it virtually impossible for Group 1 companies to restore the normal operating cycles and eliminate tax liabilities in the short run[2]. It is worth reminding that *companies of Group 1 account for one third of all the sampled enterprises.* In other words, almost one third of the companies cannot ensure a simple reproduction cycle. Capital decumulation is the only possible way out of this situation. In fact, 91% of Group 1 companies demonstrate negative capital gains.

With "effective companies" (Group 3), the tax burden on added value is relatively bearable (less than 45% of added value). The total tax liabilities of these companies do not exceed 25% of taxes levied on this group of enterprises.

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[1] In all likelihood, tax liabilities to extra-budgetary funds provide for a larger "lag of negative response" and less significant consequences for company managers as compared to confrontations resulting from failure to pay federal and local taxes.

[2] It is suitable to draw a comparison with the development of Equatorial Africa after the collapse of the colonial regime in early 1960-s. No longer subsidised by the colonial states, the respective African leaders applied to other countries (primarily to USA and USSR) and international financial organisations for large-scale loans. The effort to partially repay the loans in early 1970-s resulted in the destruction of the reproduction structure of said economies, provoking the decrease in marketability of export-oriented industries. The decline of export industries consequently weakened the state financial systems, enhanced political instability resulting in continuous civil wars, and, finally, excluded any chances of loan repayment or even debt servicing.

Another comment applies to the amount of state support being provided to the sampled companies. This parameter shows that economically sound companies are in the lead (with the rate of state support per employee standing at 7.8 thousand rubles per employee). On the other hand, "ailing companies" also seem to be receiving tangible state support (2.9 thousand rubles per employee on an annual basis, or more than a monthly wage). However, one should not be misled by the average values. *The modal value of state support for all three groups of companies is equal to 0.00.* Almost 80% of the sampled enterprises are receiving no state support. In 1999 less than 10% of Group 1 companies received moderately tangible support from the state (over 50% of the annual amount of monthly wage). The same applies to the other groups: 7% of Group 2 companies and 3-9% of Group 3 companies can boast of tangible state support.

Company managers have accurately registered the difference in the assessment of the economic status of their respective enterprises: 30% of Group 1 top executives have indicated that their companies were in "bad" condition, and only 7% of managers have given their respective businesses "good" ratings. At the same time, only 8% of Group 3 top executives characterize the current status of their companies as "bad", while 21% find it "good". In analyzing the statistical significance of differences in average estimates, the researchers have established that the probability of statistical significance of differences in the estimates of the economic status of companies between managers in Group 1 and Group 2 amounts to 97%, between company managers of Group 2 and Group 3 - to 99.7%, and between company managers of Group 1 and Group 3 - to 99.9% (on the basis of Tamhanne and Dunette's criteria).

Table 20

A comparative analysis of company managers' estimates of economic situation by company groups (as at 2000)

Estimation of economic situation in 2000	**Group 1**	**Group 2**	**Group 3**
Bad	30.1	19.1	8.5
Satisfactory	63.0	70.5	70.8
Good	6.9	10.5	20.8
Average *	$1.77^{2,3**}$	$1.91^{1,3}$	$2.12^{1,2}$
Total	***100***	***100***	***100***

* The average estimates of economic status of companies on a three-grade scale range between 1 -"bad" and 3 - "good".

** The index of statistically significant difference (with a 95% probability) on the basis of the Duncan criterion.

Table 21

Analysis of statistically significant differences in the average estimates of the economic status of companies at end of year 2000

Dependent variable: Assessment of the economic status at end of year 2000

Statistics	(I) Group	(J) Group	Difference (I-J)	Standard deviation	Significance level
Tamhanne	1.00	2.00	-0.145	0.055	0.031
		3.00	-0.354	0.067	0.000
	2.00	1.00	0.145	0.055	0.031
		3.00	-0.209	0.064	0.003
	3.00	1.00	0.354	0.067	0.000
		2.00	0.209	0.064	0.003
Dunnette T3	1.00	2.00	-0.145	0.055	0.031
		3.00	-0.354	0.067	0.000
	2.00	1.00	0.145	0.055	0.031
		3.00	-0.209	0.064	0.003
	3.00	1.00	0.354	0.067	0.000
		2.00	0.209	0.064	0.003

Thus, the comparative analysis of the grouped companies by a number of most important economic performance indicators shows that:

1. The Groups show significant difference by the fundamental criterion of classification, i.e. the rate of added value per employee.
2. The Groups follow fundamentally different modes of reproduction.
3. Company executives have proved to be competent and objective respondents.

This comes to prove, apart from the reliability of the tripartite grouping, the basic validity of the data received in the course of the top managers' survey, and also a sustainable connection between the economic and sociological data. Thus, our further investigation can be focused on identifying general and specific factors affecting added value production in the Groups identified and in the whole sub-sample.

5.2. REVIEW OF FACTORS AFFECTING ADDED VALUE PRODUCTION

5.2.1. REVIEW OF TECHNOLOGICAL CONDITIONS FOR ADDED VALUE PRODUCTION

Following the framework of assumptions adopted earlier in the report, the technological factor is the first to be considered, primarily in its aspect of capacity utilization. Indeed, this parameter shows a statistically significant difference of average values and a substantive difference within the Groups. For example, over half of Group 1 companies (52%) utilize their capacities at less than 50%, whereas only less than a quarter of Group 3 companies (22,7%) do the same. On the one hand, this proves that low nominal capacity utilization is no unsurpassable obstacle in the way of added value production, asset formation and achieving a certain financial stability. On the other hand, the capacity utilization rate tends to affect considerably the reproduction conditions.

Table 22.

Capacity utilization rate in the identified groups of companies

Capacity utilization rate	**Group 1**	**Group 2**	**Group 3**
Under 50% (1)	52.3	35.6	22.7
50-80% (2)	38.6	48.2	42.7
Over 80% (3)	9.1	6.2	34.5
Average value (On a three-point scale)	***1.57***^{2,3*}	***1.80***^{1,3}	***2.11***^{1,2}

*The index of statistically significant difference (with a 95% probability) on the basis of the Duncan criterion.

Indeed, the correlation analysis shows that the capacity utilization rate is related to the following important parameters:

- Changes in output
- Changes in staff numbers
- Workload
- Loan availability

Table 23.

Correlation among production parameters

	1	**2**	**3**	**4**	**5**
Capacity utilization rate in 2000 **1**	1.000				
Workload in 2000 **2**	0.346**	1.000			

Changes in staff numbers	**3**	0.316**	0.190**	1.000		
Changes in output	**4**	0.390**	0.259**	0.558**	1.000	
Availability of loan	**5**	-0.277**	**-0.084**	-0.314**	-0.225**	1.000

** Significance rate of 0.01

It is noteworthy that ***the correlation between capacity utilization rate and loan availability is much higher than between loan availability and «workload».*** This is a reflection of a certain trend in the behavior of Russian lending institutions that tend to be concerned about the current paying capacity of a company rather than be guided by the possible future «cash flows from confirmed orders».

Another regularity revealed shows an extremely high correlation between increased output and increased staff numbers (with a correlation coefficient of 0.558). This would imply that company revitalization hardly involves any actual increase in labor productivity, with growth being achieved through extensive factors.

Given this close interconnection among production parameters, it is hardly surprising to see different patterns of their distribution within the Groups identified (see Table 24).

Table 24.

Detailed comparison of statistically significant differences across company groups by specific economic performance indicators.

Indicator	Value of indicator	Group 1	Group 2	Group 3
Changes in output	Reduced by over 20% (1)	19.8%	15.1%	8.2%
	Reduced by under 20% (2)	10.7%	10.1%	6.4%
	Unchanged (3)	18.6%	13.8%	13.6%
	Increased by under 20% (4)	18.6%	22.0%	35.5%
	Increased by over 20% (5)	32.2%	39.0%	36.4%
Average for the parameter		***3.33***^{3*}	***3.60***	***3.85***
Workload in 2000	Under 1 month (1)	25.1%	26.8%	23.3%
	1-3 months (2)	24.0%	27.8%	23.3%
	3-6 months (3)	18.6%	22.0%	12.6%
	6-12 months (4)	23.4%	17.7%	28.2%
	Over 12 months (5)	9.0%	5.7%	12.6%
Average for the parameter		***2.67***	***2.48***^{3}	***2.84***
Availability of loan	Readily available (1)	7.6%	17.3%	32.7%
	Available with difficulty (2)	52.2%	58.6%	56.1%
	Unavailable (3)	40.1%	24.1%	11.2%
Average for the parameter		***2.32***^{2,3}	***2.07***^{1,3}	***1.79***^{1,2}
Changes in staff numbers	Reduced by over 20% (1)	21.7%	14.2%	3.7%
	Reduced by under 20% (2)	25.7%	32.4%	22.9%
	Unchanged (3)	24.6%	29.2%	30.3%
	Increased (4)	28.0%	24.2%	43.1%

Average for the parameter	***2.59***	***2.63***	***3.12[1,2]***

*The index of statistically significant difference (with a 95% probability) on the basis of the Duncan criterion.

The «loan availability» parameter shows the most glaring difference. Loans are «virtually unavailable» for almost half of Group 1 companies. This further supports the conclusion put forward in Section 1 about a fundamental impossibility of normal reproduction in enterprises of this Group. However, there is another important evidence, rather unexpected, that claims consideration. There is no noticeable difference between workloads of Group 1 and Group 2 enterprises. In both cases almost half of the companies are operating virtually «off the wheels», with a backlog of orders for less than three months. Only individual companies in each Group can engage in sound production and financial planning, based on a backlog of orders to keep them going for over a year.

Guided by the importance of the issue, we have compared the average values of the production parameters by groups of industries (see Table 25).

Table 25.

Analysis of differences among average values of economic performance indicators by industry groups

Industry	**Capacity utilization in 2000**	**Workload in 2000**	**Changes in staff numbers**	**Changes in output**	**Loan availability**
Fuel and energy sector	1.5636	3.7975	2.2051	2.4713	1.7863
Ferrous and nonferrous metallurgy	2.0000	2.2930	2.1667	3.2500	1.2692
Chemicals	1.6875	2.0606	1.9636	3.0337	1.8000
Engineering	1.5882	2.0516	2.3305	3.1517	1.7854
Timber and woodworking industry	1.6835	1.8447	2.0987	2.4841	2.0000
Construction	1.3421	2.1186	2.3182	2.3394	1.9859
Light industry	1.4655	1.6444	2.0645	2.4588	2.1279
Food industry	1.3564	1.6635	2.2616	2.2339	1.7586
Statistical significance of inter-industry difference (ONEWAY ANOVA)	***0.002***	***0.000***	***0.281***	***0.001***	***0.001***

The review of the production parameters by industries has revealed considerable disproportions. Long-cycle industries (engineering and construction) have proved to have a

much smaller workload than short-cycle export-oriented industries (fuel industry and metallurgy). To take a closer look at this issue, we have performed a three-dimensional analysis of capacity utilization correlations across various industries with regard to a company's attribution to one of the three identified groups on the basis of the added value generation criterion. (see Table 26).

Table 26.

Capacity utilization rate across industries with regard to grouping of companies on the basis of their added value production.

Industry	**Group**	**Capacity utilization in 2000**		
		Under 50%	**50-80%**	**Over 80%**
Fuel and energy sector	***Group 1***	60.0%	20.0%	20.0%
	Group 2	23.1%	38.5%	38.5%
	Group 3	20.0%	20.0%	60.0%
Ferrous and nonferrous metallurgy	***Group 1***	100.0%	-	-
	Group 2	-	80.0%	20.0%
	Group 3	-	16.7%	83.3%
Chemicals	***Group 1***	60.0%	40.0%	-
	Group 2	-	100.0%	-
	Group 3	14.3%	57.1%	28.6%
Engineering	***Group 1***	50.0%	41.1%	8.9%
	Group 2	30.8%	50.0%	19.2%
	Group 3	6.7%	50.0%	43.3%
Timber and woodworking industry	***Group 1***	33.3%	66.7%	-
	Group 2	12.5%	68.8%	18.8%
	Group 3	25.0%	50.0%	25.0%
Construction	***Group 1***	60.0%	35.0%	5.0%
	Group 2	50.0%	45.5%	4.5%
	Group 3	33.3%	55.6%	11.1%
Light industry	***Group 1***	50.0%	47.4%	2.6%
	Group 2	31.3%	52.1%	16.7%
	Group 3	-	100.0%	-

Food industry	***Group 1***	55.0%	20.0%	25.0%
	Group 2	70.6%	20.6%	8.8%
	Group 3	40.5%	35.1%	24.3%

The fuel and energy sector and ferrous metallurgy feature virtually diagonal tables – those to have ensured over 80% of capacity utilization make the most sustainable companies; those with the rate of capacity utilization ranging from 50 to 80% form the average category; whereas those with less than a 50% capacity utilization rate have to live from hand to mouth, destroying the value and feeding on their fixed assets. *Engineering provides a somewhat less clear-cut, but similar picture. Alternatively, in construction, light and particularly food industry, companies manage to generate added value under low capacity utilization.*

Looking at the workloads, we can see a still more curious situation. True, in the fuel and energy sector the most sustainable companies can do forward planning for more than a year ahead because they have a substantial stock of orders. Whereas in most other industries, only a third of the most sustainable enterprises have orders to keep them going for 6-12 months. Ironically, however, in timber, light and food industries most sustainable companies achieve stability with a less than a month ahead of orders. This can be accounted for not only by certain inertia of demand, but also by persistent marketing efforts to sustain and expand demand. Besides, it's evident that successful operation «off the wheels» requires considerable changes in the traditional calculation system for orders received, enhanced flexibility in management accounting and ability to cater for and adjust to client needs and requirements.

All the above necessitates a closer look at the innovation factors of added value production.

Table 27.

Workload across industries with regard to grouping companies on the basis of their added value production

Industry	Group	Workload in 2000				
		Under 1 month	1-3 months	3-6 months	6-12 months	Over 12 months
Fuel and energy sector	Group 1	-	5.6%	16.7%	38.9%	38.9%
	Group 2	8.3%	8.3%	8.3%	16.7%	58.3%
	Group 3	-	-	-	30.0%	70.0%
Ferrous and nonferrous metallurgy	Group 1	100.0%	-	-	-	-
	Group 2	20.0%	-	60.0%	20.0%	-
	Group 3	-	33.3%	16.7%	16.7%	33.3%
Chemicals	Group 1	25.0%	-	75.0%	-	-
	Group 2	16.7%	-	50.0%	33.3%	-
	Group 3	28.6%	14.3%	42.9%	14.3%	-
Engineering	Group 1	23.6%	30.9%	21.8%	21.8%	1.8%
	Group 2	11.8%	35.5%	28.9%	21.1%	2.6%
	Group 3	24.1%	34.5%	6.9%	27.6%	6.9%
Timber and woodworking industry	Group 1	21.4%	21.4%	21.4%	28.6%	7.1%
	Group 2	25.0%	37.5%	12.5%	12.5%	12.5%
	Group 3	50.0%	12.5%	12.5%	25.0%	-
Construction	Group 1	21.1%	15.8%	15.8%	31.6%	15.8%
	Group 2	22.7%	31.8%	31.8%	13.6%	-
	Group 3	-	44.4%	22.2%	33.3%	-
Light industry	Group 1	31.6%	34.2%	15.8%	13.2%	5.3%
	Group 2	44.2%	32.6%	11.6%	11.6%	-
	Group 3	33.3%	-	33.3%	33.3%	-
Food industry	Group 1	44.4%	16.7%	5.6%	27.8%	5.6%
	Group 2	55.2%	10.3%	10.3%	20.7%	3.4%
	Group 3	32.3%	19.4%	9.7%	32.3%	6.5%

5.2.2 TRANSACTION FACTORS OF PRODUCTION AND DISTRIBUTION OF ADDED VALUE

Economic performance in Russia in 2000 leaves no doubt about considerable «monetazation» of the economy following economic growth. Non-cash settlements and payments in money surrogates have slumped.

Our survey serves to support this judgement (see Table 28).

Table 28.

Payments for deliveries in 1998 and at end of year 2000.

Forms of settlements	**End of year 1998**	**End of year 2000**
On loan	26.5	23.4
Cash settlements,	52.0	62.0
Including those through banks	46.0	57.4
Barter	35.3	24.1
Offsets	31.9	25.3
Promissory notes (veksels)	9.7	13.2

Apart from a sizable shrinking of barter arrangements (almost by 40%), another important positive role belongs to the restored functions of the banking system in the aftermath of the 1998 crisis. By year-end of 2000, 57.4% of all payments were made through banks.

Below is the structure of payments by year-end of 2000 presented by industries.

Table 29.

Settlement arrangements at year-end 1998 and 2000, presented by industries

Industry	Forms of settlements	End of year 1998	End of year 2000
Fuel and energy sector	On loan	42.3	23.3
	Cash,	29.9	50.6
	Including those through banks	30.9	48.4
	Barter	32.4	25.8
	Offsets	45.8	30.2
	Promissory notes (veksels)	6.5	16.0
Metallurgy	On credit	21.3	23.7
	Cash settlements,	52.1	74.2
	Including those through banks	43.3	67.1
	Barter	22.1	16.7
	Offsets	24.5	17.8
	Promissory notes (veksels)	11.8	10.0
Chemicals	On credit	13.3	16.8
	Cash settlements,	72.7	79.5
	Including those through banks	64.8	70.2
	Barter	38.9	15.3
	Offsets	16.3	26.6
	Promissory notes (veksels)	3.7	8.3
Engineering	On credit	20.7	19.3
	Cash settlements,	47.6	61.8
	Including those through banks	50.6	61.0
	Barter	37.3	23.7

	Offsets	30.7	24.5
	Promissory notes (veksels)	11.5	14.7

Table 29 (continued).

Settlement arrangements at year-end 1998 and 2000, presented by industries

Industry	Settlement arrangements	End of year 1998	End of year 2000
Timber and woodworking	On credit	24.8	27.8
	Cash settlements	42.5	56.1
	Including settlements through banks	36.6	50.1
	Barter	34.4	25.7
	Offsets	33.3	26.4
	Promissory notes (veksels)	11.8	12.4
Construction	On credit	17.7	25.3
	Cash settlements	45.2	53.2
	Including settlements through banks	29.1	43.5
	Barter	35.8	25.0
	Offsets	33.9	28.3
	Promissory notes (veksels)	6.8	10.3
Light industry	On credit	37.6	32.5
	Cash settlements	58.7	68.0
	Including settlements through banks	41.6	61.6
	Barter	37.4	26.5
	Offsets	34.4	26.7
	Promissory notes (veksels)	9.5	8.1
Food industry	On credit	27.2	22.0
	Cash settlements	59.6	68.0
	Including settlements through banks	48.1	57.8
	Barter	34.1	24.2
	Offsets	23.8	20.3

	Promissory notes (veksels)	11.2	13.0

Table 29 presents a graphic demonstration of settlement arrangements distribution within industries.

A profound statistic analysis showed that so far there have been no radical changes in price ratio between barter and cash payments. (see Table 30).

Table 30.

Price ratio between barter and cash settlements at year-end 1998 and 2000.

Price ratio (%% of companies)	**1998**	**2000**
No difference	44.9	51.9
Higher by less than 30%	40.8	33.7
Higher by 30-50%	5.4	5.1

Barter overpricing continues to affect negatively the economic status of enterprises, depriving them of funds that otherwise could be invested in development. Hence the need to measure the influence of barter on the economic status of enterprises.

Table 31.

Correlation of barter share and prices for products, supplied through barter and cash arrangements, presented by Groups.

Group of companies, classified on the basis of their economic performance indicators.	Share of barter in 1998	Share of barter in 2000
Group 3	**30.48**[1*]	**14.98**[1,2]
Group 2	**35.18**	**23.94**
Group 1	**41.20**	**32.82**

*The index of statistically significant difference (with a 95% probability) on the basis of the Duncan criterion.

The in-depth review revealed the following: «sustainable enterprises» (Group 3) at year end 1998 had a different rate of barter compared from failure enterprises (Group 1) (probability of averages coinciding with regard to variance rate lower than 0.05 on the basis of the Duncan criterion). However, the 2000 data show that sustainable enterprises have achieved a breakthrough in slashing barter by over two times (from 30.5 down to 15%). This brought about a statistically significant gap between Group 3 and the other Groups, including the «average» Group.

This allows us to conclude that the role of the transaction factor in added value production and distribution has increased considerably over the past two years.

5.2.3 INSTITUTIONAL CONDITIONS FOR THE PRODUCTION AND DISTRIBUTION OF ADDED VALUE

Up to this point the companies have been treated as isolated economic agents, related to each other exclusively through the market. However, it's an acknowledged fact that a big portion of Russian industry is already incorporated into formal and informal integrated business structures. On a micro-level, our survey helps to bring out the role of such structures. Most importantly, almost 40% of the surveyed company executives did not deny their company's participation in a formal or informal group, which coordinates operations of its constituent enterprises.

First, we have compared degrees of independence of individual companies within the identified groups of companies. The following regularities have been revealed:

The absolute majority of companies in all the three groups are operating independently of major integrated business entities.

Both Group 1 companies and Group 3 companies have good chances of being incorporated into major integrated business entities. Most probably incorporation of a Group 3 enterprise would be motivated by the integrated business's desire to appropriate the enterprise's added value. On the other hand, incorporation of Group 1 enterprises is indicative of the important role of other-than-economic factors at play in the course of property redistribution in the Russian economy.

Table 32.

Company autonomy (intra-group distribution)

Company autonomy degree	**Group 1**	**Group 2**	**Group 3**
Totally autonomous in operations	69.8	73.8	63.8
Participate in an informal group of enterprises which coordinates certain operations	11.3	6.4	11.4
Make a constituent member of a major business structure, which sets forth strategic development targets	5.7	10.4	11.4
Make a constituent member of a major business structure, which defines both strategic development targets and day-to-day operations	13.2	9.4	13.3
total	100	100	100

It can be assumed that the degree of company incorporation into integrated business entities may manifest itself in added value production and redistribution via «intermediate factors» rather than directly.

Our first assumption was that companies incorporated into integrated business entities operate along controlled value chains rather than in the open market. This is supposed to

influence both the capacity utilization rate (it is assumed that integrated structures seek to maximize capacity utilization of their constituent enterprises), and the use of «surrogate money» (it is assumed that incorporation of an enterprise into an integrated business structure should entail decreased barter settlements among business partners).

Both assumptions proved true.

Comparison of barter supplies among company Groups, classified on the basis of their autonomy, revealed the following: companies whose strategic outlines and daily operations are defined by a major business structure, show lower usage of barter arrangements.

Table 33.

Barter rate in companies of different relation to other business structures

Degree of company autonomy	**Share of barter operations (in %)**
Absolutely autonomous in operations	**23.9**
Participate in an informal group of enterprises, which coordinates certain operations	**27.3**
Make a constituent member of a major business structure, which sets forth strategic development targets	**25.5**
Make a constituent member of a major business structure, which defines both strategic development and day-to-day operations	**18.3**

Next we compared the rate of capacity utilization in relation to the degree of a company's autonomy.

Table 34.

Rates of capacity utilization in companies of various degree of autonomy

Rate of capacity utilization in 2000	**Companies, absolutely autonomous in their operations**	Companies, participating in informal groups of companies, which coordinate some of their operations	Companies, making constituent members of major business structures, which set forth strategic development targets	**Companies, making constituent members of major business structures, defining strategic development targets and day-to-day operations**
Under 50%	74.0	**9.6**	**6.2**	**10.2**
50-80%	75.7	**7.8**	**7.3**	**9.2**
Over 80%	48.1	12.3	18.5	21.0

Indeed, the more tightly a company is incorporated in business operations of a major integrated structure, the higher is the average probability of high capacity utilization. Analyzing the variance by the UNIANOVA method, we have established, that *these two factors (capacity utilization and barter proportion) account for 18% of variance in the added value production.*

Thus we can observe a most interesting feature of the economy evolution in the Russian manufacturing sector, i.e. a substitution of a non-market sector with an extra-market sector. This means that enterprises, leaving the non-market sector (characterized by lacking added value and surrogate relations with business partners), do not enter the open market environment, but are immediately sucked into the corporate systems of major integrated structures.

And still another feature of the institutional environment of Russian business remains to be mentioned, i.e. their relations with local authorities. We must admit that local authorities are, in most instances, very much indifferent to businesses located in their respective territories. Almost three fourths (74-77% of companies within individual Groups) either have limited contacts with local authorities, or have no "tinted contacts" whatsoever, apart from the traditional issues of taxes and «voluntary contributions» to local funds. Only 13% of the sampled companies get comprehensive support in a wide range of issues. Quite unexpectedly comes the rarity of bad conflicts between the company's management and the local authorities. It might be interesting to note that such disputes are often caused by non-economic reasons (half of the companies involved in a heated controversy with local authorities do not have any outstanding payments to their respective local budgets).

Table 35.

Relations between the sampled companies and respective local authorities

Assumption	Group 1	Group 2	Group 3
Local authorities provide continuous assistance in a wide range of issues	12.7	12.1	16.7
Local authorities occasionally provide assistance in individual issues	36.4	42.7	41.7
Local authorities provide no support and equally no interference	38.8	35.7	36.5
Local authorities sometimes interfere	7.3	7.0	3.1
The company management is involved in a violent controversy with the local authorities.	3.6	1.5	2.1

Thus, the «meso-level» institutional factors significantly affect the added value production and redistribution.

5.2.4. REVIEW OF INNOVATION FACTORS CONTRIBUTING TO ADDED VALUE PRODUCTION

To provide a detailed analysis of innovation factors contributing to the added value production, a special sociological tool has been applied. Company executives were given a four-point scale to mark the returns on 15 possible innovations in manufacturing, marketing, finance and personnel management: -1 = negative returns, 0 = not applied, +1 = some returns, +2 = sizable returns. This tool has proved quite reliable. On the average, the reliability index (according to Alf Kronbach) for the tool makes 0.796.

Usually such bipolar «biased» scales are used to improve the responsibility of respondents. However, it is not the «positive effect» assessment of an innovation that has true value (in most instances it would correlate with the overall assessment of the economic development of a company), so much as the actual effort to introduce this innovation. Thus, for the purposes of further analysis, source data were translated into binary variables, with «zero» denoting the absence of such innovation, and «+ 1» denoting attempts to introduce this innovation over the past two years.

To address this task, we have performed a «frequency analysis» of cases of introducing new forms and methods at the surveyed enterprises.

Table 36.

Scale of innovation activities in the surveyed companies

Indicator	**Group 1**	**Group 2**	**Group 3**	**Significance rate**
Phasing out obsolete equipment	0.49[3*]	0.60	0.64	***0.054***
Leasing out (selling) redundant machinery	0.34	0.36	0.40	0.550
Leasing out plant space	0.48	0.51	0.54	0.687
Renting machinery	0.14	0.14	0.23	0.172
Putting into operation new capacity	0.40	0.41	0.65[1,2]	***0.000***
Phasing out individual products	0.40	0.44	0.49	0.414
Introduction of fundamentally new products	0.54	0.55	0.65	0.211
Entry into new markets	0.52	0.55	0.65	0.154
Engagement of new foreign partners	0.19	0.25	0.30	0.194
Engagement of new Russian partners	0.50[3]	0.60	0.66	***0.039***
Major changes in management organization	0.33	0.34	0.42	0.364
Change of ownership	0.17	0.18	0.19	0.901
Product certification against ISO standards and other international standards	0.26[3]	0.32	0.42	***0.070***
Introduction of new accounting and planning procedures	0.42	0.43	0.68[1,2]	***0.000***
Introduction of new personnel management procedures	0.32	0.41	0.62[1,2]	***0.000***

*The index of statistically significant difference (with a 95% probability) on the basis of the Duncan criterion.

Looking into the innovation processes at the company level, the researcher is struck with high intensity of innovation activities in a broad sense of the word, implying introduction of new methods of production and management.

Basically all innovations break down into four classes on the basis of their prevalence and intensity of usage in various groups of companies:

Class 1 – Popular nonspecific measures

These measures include actions taken by over 40% of companies, with no statistically significant difference observed among the groups:

- Leasing out of plant space
- Phasing out of individual products
- Introduction of new products
- Entry into new markets

These measures may be referred to as «innovation routine», unable to change the situation in the company or to have a specific effect on added value generation.

Class 2 – Popular specific measures

These measures include actions taken by over 40% of companies, with statistically significant difference among the groups.

- Phasing out of obsolete equipment and machinery
- Putting into operation new capacities
- Engagement of new Russian partners
- Introduction of new accounting and planning procedures
- Introduction of new personnel management procedures

Evidently, Class 2 innovations include both measures on the production side (phasing out of redundant machinery and installation of new machinery and equipment), and innovations in the management arrangements (marketing, financial management and personnel management).

It stands out, that Group 3 companies show a much higher rate of innovative activities. On the average, with the only exception of «attraction of new Russian partners», all the Class 2 measures have been applied by two thirds of Group 3 companies and only by one third of Group 1 companies. Moreover, the initial breakdown of factors (see Section 1) classifies as technological the following measures: capacity streamlining (phasing out or leasing out redundant equipment and plant space), purchase or renting of required additional equipment and plant space. This brings us to a final verification and refinement of our initial assumption about the technological factors contributing to added value generation: *a high rate of capacity utilization (primarily in heavy industry) and a high flexibility in capacity building (primarily in the decommissioning of equipment and machinery with no chances for utilization, given the current order book) do make important prerequisites for added value production.*

Class 3 – Less-than-popular specific measures

These measures include low-prevalence actions (under 40% on the average), which, however, show statistically significant differences among the Groups. That basically applies to certification of products according to the ISO international classification. This measure

stands somewhat apart from the other measures, combining the introduction of new products and of new management and accounting procedures. In Russia the implementation of ISO standards would actually imply a possibility to introduce some initial order in the manufacturing sphere. Group 3 (sustainable companies) serves to demonstrate this correlation. (See Table 37).

Table 37.

Correlation among the measures (all the companies)

											0
Phasing out obsolete equipment	**1**	.000									
Leasing out (selling) redundant equipment and machinery	**2**	.262*	.000								
Leasing out plant space	**3**	.218*	.465*	.000							
Renting equipment and machinery	**4**	.039	.085	.123*	.000						
Putting into operation new capacity	**5**	.180*	).019	).064	.181*	.000					
Phasing out individual products	**6**	.171*	.171*	.231*	.118*	.146*	.000				
Introduction of fundamentally new products	**7**	.116*	.095	.154*	.027	.259*	.344*	.000			
Entry into new markets	**8**	.184*	.028	.146*	.023	.294*	.314*	.581*	.000		
Engagement of new foreign partners	**9**	.192*	.086	.119*	.115*	.270*	.264*	.296*	.371*	.000	
Engagement of new Russian partners	**10**	.212*	.181*	.180*	.154*	.234*	.276*	.367*	.504*	.341*	.000
Considerable changes in management organization	**11**	.175*	.158*	.265*	.122*	.186*	.206*	.240*	.313*	.273*	.307*
Change of ownership	**12**	.031	.083	.098	.121*	.012	).062	).041	).080	).066	).023
Product certification against ISO and other international standards	**13**	.126*	.039	.155*	.036	.144*	.196*	.321*	.283*	.234*	.182*
Introduction of new accounting and planning procedures	**14**	.159*	.139*	.198*	.093	.270*	.191*	.277*	.360*	.229*	.312*

Introduction of new personnel management procedures	**15**	.227*	.130*	.135*	.067	.242*	.209*	.251*	.330*	.269*	.315*

* Significance rate of 0.05

** Significance rate of 0.01

Table 38.

Correlation among measures (sustainable companies)

											0
Phasing out obsolete equipment	**1**	0									
Leasing out (selling) redundant equipment and machinery	**2**	6**	0								
Leasing out plant space	**3**	8	6**	0							
Renting equipment and machinery	**4**	67	28	8	0						
Putting new capacity in operation	**5**	5**	7	70	0	0					
Phasing out individual products	**6**	2*	9*	4*	5	2	0				
Introduction of fundamentally new products	**7**	8	58	8	7	9*	8**	0			
Entry into new markets	**8**	4*	4	9	51	9*	8**	7**	0		
Engagement of new foreign partners	**9**	7*	7*	2	8	4**	5**	8**	5**	0	
Engagement of new Russian partners	**10**	9**	9	8	60	7	8	5**	0**	0**	0
Considerable changes in management organization	**11**	7	0**	9**	2	0	8*	6	0*	8	2*
Change of ownership	**12**	45	8	8	7*	67	97	67	68*	73	67
Product certification against ISO and other international standards	**13**	63	26	8	66	82	6	2*	1*	8	0
Introduction of new accounting and planning procedures	**14**	6	6	8	64	0	2	1	0*	8	8

Introduction of new personnel management procedures	**15**	0*	8**	0	54	6	6**	5	8*	6*	1

* Significance rate of 0.05

** Significance rate of 0.01

Class 4 – Less-than-popular nonspecific measures

These measures include measures of low prevalence (under 40% on the average), with no statistically significant difference among the Groups. They are as follows:

- Rent of equipment and machinery,
- Engagement of new foreign partners,
- Changes in management organization.

This brings us to a specific configuration of properly innovative activities of a successfully operating company:

1. Quick capacity reshuffle and decommissioning of redundant equipment
2. Drastic revision of the current selection of Russian partners (based on their readiness to pay in cash)
3. Introduction of new accounting and financial planning procedures, allowing for practical cost management,
4. Introduction of new personnel management procedures and techniques, ensuring the implementation of these innovations (especially new accounting and planning procedures)

5.3. INTEGRATED ANALYSIS

5.3.1 OBJECTIVES OF INTEGRATED ANALYSIS

The integrated analysis seeks to follow possible effects of the identified technological, transaction, institutional and innovation factors on added value production and redistribution.

Preliminary review (Section 2) has yielded the following factors, ensuring direct or indirect impact on the classification of the sampled enterprises on the basis of their added value production patterns:

1. degree of incorporation into major integrated business structures
2. exports abroad
3. workload
4. share of cash payments
5. introduction of new accounting and planning procedures
6. decommissioning of obsolete (redundant) equipment and machinery
7. capacity utilization rate

The issue is how these factors can be prioritized within a relatively realistic model of impacts on added value production.

5.3.2. PROCEDURE AND OUTCOME OF INTEGRATED ANALYSIS

The procedure of integrated analysis involves pairwise comparison of all the correlation coefficients among the identified variables and the final variable – the Group whereto a company is attributed on the basis of added value criteria. This involves consideration of not only statistically significant correlation coefficients, but also of the absence of correlation among the variables, as well as the logical sequence of phenomena.

Such integrated analysis has yielded the following model of economic, institutional and innovation factors of added value generation in the Russian industrial sector. (See Figure 1).

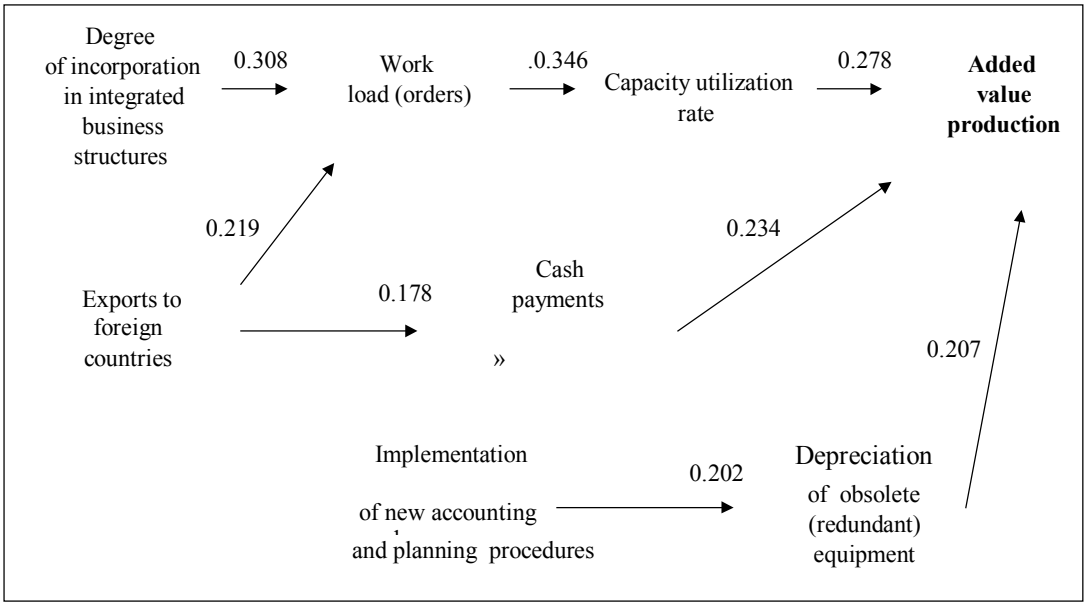


Figure. 1 Model of added value generation factors

This model is a graphic presentation of the role played by all the factors identified, including the institutional, innovation and transaction factors, in the shaping of microeconomic conditions for added value production.

5.3.3. BASIC CONCLUSIONS FROM THE SURVEY DATA ANALYSIS

We have listed the factors affecting added value production by Russian companies, identifying generally significant factors and revealing possible interconnections among them. The following conclusions can be offered:

Currently the non-market sector in the Russian industrial sector does not show any trend to expansion. Moreover, a long prevalent strategy of government support to desperately ineffective enterprises resulting in the preservation and persistence of ineffective management procedures, has been finally overcome.

However, a most important prerequisite for continued negative added value production is still there, i.e. weak control over the accrual of debt to the federal and local budgets. Over one third of enterprises (Group 1) have accumulated a sizeable aggregate debt, while they have to give away almost all their added value in taxes.

Further «rationalization of economic behavior of companies» is complicated by rapidly developing integrated structures in the industrial sector, especially in export-oriented industries. On the one hand, a company's incorporation in such structures objectively enhances its capacity utilization rate and creates more favorable conditions for added value production. On the other hand, such integrated structures tend to conserve certain "inefficiency havens", with a definitely extra-economic rationale behind their existence. The tendency for enterprises to move from non-market into extra-market sector has taken firm root.

Added value production is manageable not only on the macro- and meso-levels, but also on the individual company level. Virtually all the sampled enterprises are trying, as hard as they can, to pursue proactive innovation policies. However, only through the implementation of new planning and accounting procedures and techniques can company managers obtain a better control over such business processes as are prone to yield negative performance, and select such organization and management arrangements as may positively affect added value generation. As a result, company managers, employing new forms of management accounting and controls, seek to

streamline the capacity utilization, revise transaction terms and conditions, and adopt new industrial and management technologies.

Added value generation in many ways is an intensive process. Enhanced economic performance is usually accompanied by expanded production and workforce. That means that the Russian industry objectively shows a strong labor outflow from less efficient into more efficient enterprises, and the creation of new jobs.

6. The research shows that the rate of capacity utilization ranks among the most important factors for added value production. Sizeable redundant capacity, even in economically sustainable companies, entails higher costs and, eventually, an excessive tax burden on added value. This raises the issue of more proactive structural policies in the sphere of fixed asset formation.

6. NON-MARKET SECTOR IN RUSSIAN INDUSTRY: VERIFICATION OF CONCLUSIONS ON THE BASIS OF SECTOR-BY-SECTOR DYNAMIC ANALYSIS

The above conclusions on the structure and distinctive operating features of the non-market sector in the Russian economy need to be verified.

We deemed it necessary before everything else to validate the very assumption that the market and non-market sectors can be delineated on the basis of statistical information about added value and debts. Therefore, we checked the hypothesis that a more meticulous delimiting of this kind can be ensured by examining the dynamic parameters of company operations, i.e. by making a comparative review of the basic financial and economic performance indicators posted by different enterprises.

This approach to research was based on the postulation that companies' inability to adapt themselves to market conditions constitutes a key hallmark of the non-market sector. If there are such enterprises in Russian industry as *stand out among market-adjusted factories owing to their visibly lower efficiency,* the business results of the two categories of companies were to differ substantially amid the economic upturn of 1999. Unlike enterprises in the non-market sector, companies fitting in well with the market were expected to be able to take advantage of the favorable economic conditions resulting from the preceding macroeconomic shock. Under the circumstances, the deterioration of the economic positions of enterprises could be seen as betraying their belonging to the non-market sector.

6.1. DATA USED

As already noted above, the database created for the study included enterprises in virtually every basic industry (in accordance with the Russian OKONKh national classification of economic sectors). We had to leave some of the industries – including in particular, the peat sector, oil refining, and non-ferrous metallurgy - outside the scope of the review owing to unduly scanty monitoring data available. In addition, information intended for the database was in a number of cases found to be flawed apparently as a result of dimensional errors made when completing statistical report forms. This discovery necessitated a substantial cutback in the number of enterprises covered by the survey. The results of observations excluded from the analysis are represented in Annex 1. The review was thus limited to the following nine sectors – power generation and distribution, the gas industry, oil production, ferrous metallurgy, the chemical and petrochemical industries, mechanical engineering and metal-working, the timber, lumbering and pulp-and-paper industries, the building materials sector, light industry, and the food industry. General characteristics of both the starting and the final samples for them are found in Table 39. It can be seen that different sectors were represented in the samples to different extents. The enterprises represented in the final sample mostly widely included those in power generation and distribution (as they accounted for around 11% of this sector's output), ferrous metallurgy (over 13%), light industry (12%-13%), and the food industry (about 8%). The chemical and petrochemical industries proved the least represented, as the 25 companies in this sector included in the review were together responsible for only less than 1.5% of its combined production.

Compared with the average size of a company in each industry (see data in Table 1), the sample comprised larger enterprises. They also boasted higher output per employee, an indicator pointing to the higher efficiency shown by these enterprises in using their resources. However, it cannot be said that the companies covered by the survey in 1998-99 achieved better overall results than average enterprises in their respective industries. Except for power generation and distribution, light industry and the food industry, the share of those enterprises included in the sample in the total output of their corresponding industries decreased from 1998 to 1999. It needs to be clarified, however, that this happened against the background of increases in the aggregate number of enterprises in most industries (save for the chemical and petrochemical industries, as well as light industry). A contraction of the share of combined output where the number of competitors remained the same can be generally regarded as a pointer to a relative decline in the economic performance of the companies concerned.

Table 39.

Share of enterprises included in the sample in total output from their respective industries (1998-99)

	Power generation and distribution		Gas industry		Oil production		Ferrous metallurgy		Chemical and petrochemical industries		Mechanical engineering		Timber. lumbering and pulp-and-paper industries		Building materials sector		Light industry		Food industry	
	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999
Total number of enterprises in the industry	*1,290*	*1,528*	*103*	*118*	*385*	*431*	*1,393*	*1,479*	*5,831*	*5,776*	*6,999*	*6,944*	*2,0357*	*2,0915*	*9,626*	*9,771*	*2,0821*	*1,8813*	*2,2291*	*2,2873*
Number of enterprises included in starting sample	*47*		*8*		*16*		*18*		*27*		*290*		*96*		*84*		*152*		*189*	
Share of enterprises included in starting sample in total number of enterprises in industry (%)	*3.64*	*3.08*	*7.77*	*6.78*	*4.16*	*3.71*	*1.29*	*1.22*	*0.46*	*0.47*	*4.20*	*4.15 !*	*0.47*	*0.46*	*0.87*	*0.86*	*0.74*	*0.82*	*0.85*	*0.83*
Share of enterprises included in starting sample in total output from industry (%)	*15.90*	*20.65*	*No data.*	*No data.*	*No data.*	*No data.*	*13.40*	*13.00*	*1.42*	*1.28*	*5.70*	*4.41*	*3.17*	*2.87*	*6.19*	*6.14*	*13.42*	*14.68*	*9.85*	*11.46*

Share of enterprises included in starting sample in average total number of employees in industry (%)	*8.33*	*7.74*	*8.87*	*8.63*	*12.66*	*18.67*	*4.02*	*3.97*	*0.91*	*0.93*	*2.58*	*2.93*	*1.91*	*1.65*	*3.02*	*2.72*	*5.60*	*4.98*	*4.27*	*3.94*
Share of enterprises included in starting sample in total payroll in industry (%)	*14.96*	*15.11*	*4.07*	*33.11*	*9.57*	*36.51*	*12.29*	*13.39*	*1.09*	*1.82*	*5.50*	*4.89*	*3.44*	*3.23*	*6.49*	*6.97*	*10.91*	*10.38*	*7.67*	*7.88*
Number of enterprises in final sample	*29*		*8*		*16*		*18*		*25*		*228*		*80*		*70*		*118*		*144*	
Share of enterprises included in final sample in total number of enterprises in industry (%)	*2.25*	*1.90*	*7.77*	*6.78*	*4.16*	*3.71*	*1.29*	*1.22*	*0.43*	*0.43*	*3.26*	*3.28*	*0.39*	*0.38*	*0.73*	*0.72*	*0.59*	*0.65*	*0.65*	*0.63*
Share of enterprises included in final sample in total output from industry (%)	*10.79*	*11.48*	*No data.*	*No data.*	*No data.*	*No data.*	*13.40*	*13.00*	*1.41*	*1.28*	*4.60*	*3.56*	*3.09*	*2.68*	*5.19*	*5.06*	*12.11*	*13.02*	*7.90*	*8.11*

Share of enterprises included in final sample in average total number of employees in industry (%)	*4.06*	*3.54*	*8.87*	*8.63*	*12.66*	*17.73*	*4.02*	*3.97*	*0.89*	*0.91*	*1.91*	*2.35*	*1.59*	*1.43*	*2.56*	*2.23*	*4.79*	*4.44*	*3.27*	*2.86*
Share of enterprises included in starting sample in total payroll in industry (%)	*7.71*	*8.64*	*4.07*	*33.11*	*9.57*	*32.19*	*12.29*	*13.39*	*1.06*	*1.79*	*4.13*	*4.09*	*3.09*	*2.74*	*4.95*	*5.78*	*9.04*	*9.05*	*5.66*	*5.17*

6.2. UNDERLYING PRINCIPLES OF ANALYSIS

The ultimate objective of our research was two-pronged. Firstly, we sought to determine the nature of changes in economic performances put up by enterprises in different industries between 1998-99. The differences identified in the qualitative characteristics of their operating efficiency would enable us to draw conclusions about the sizes of the non-market sectors in specific sectors and in Russian industry as a whole. Secondly, we wanted to detect links between movements in such indicators shown by enterprises, on the one hand, and their positions and behavior on the market, on the other.

This required answering the following questions:

- Which indicators calculated on the basis of available data can best reflect the efficacy of changes taking place at the monitored enterprises in the period under review?
- Which percentages of the sample are constituted by those enterprises which were able to improve and those reporting a decline in their operating efficiency in 1999?
- It is possible within each industry to trace down a connection between the efficacy of changes occurring in the economic positions of enterprises and the basic indicators characterizing their performances and market behavior?

We opted for three indicators, all of them based on comparing economic performance indices, as gauges of the efficacy of changes. We consciously gave up on the use of solely those indicators which describe the operating efficiency of enterprises in static terms (including profits per ruble worth of output, profits or output per employee, and value added per ruble worth of output or per ruble of added value). This decision was dictated by our interpretation of the problem of efficiency (and, in a broader context, that of market-minded conduct) in Russian industry. Any market economy at any given time has some low-efficiency companies (hamstrung by inadequate worker productivity, high specific production costs, inadequate product ranges, etc.). One formidable stumbling block in the way of Russian industrial development is the decreasing impact of incentives that would prompt lame-duck enterprises either to raise efficiency or to cease operations in the given industry. In contrast, there still remain fairly strong restrictions – such as barriers to cash flows between different industries and types of business, government aid, etc.

In this context, the *continuing downturn* in business efficiency indicators can be seen as a distinguishing feature of the non-market sector in the Russian economy. Worsening performances from 1998 to 1999 were particularly symptomatic of *non-market* enterprises because they took place against the general backdrop of felicitous macroeconomic changes.

The three indicators chosen to demonstrate the efficacy of changes in business operations were: (1) *the relation of the growth rate of gross value added (GVA) to the growth rate of output; (2) the relation of the growth rate of overdue accounts receivable to the growth rate of output;* and *(3) the relation of the growth rate of overdue accounts payable to the growth rate of output.* We decided that these markers can illustrate qualitative changes in company activities. The first ratio was to at least equal to 1 and the other two were to be less than 1 in order to signal positive qualitative dynamics. We deliberately refused to separate increases and decreases in output, GVA, and accounts receivable and accounts payable as such. In a market economy, both increases and

decreases in output can lead to gains in economic efficiency. Similarly, even the accretion of accounts receivable or accounts payable does not preclude efficient changes in a company's operations if its gross output expands faster than liabilities.

We thought better of relying in our analysis on a number of indicators which in principle depict the value of changes in the conduct and positions of enterprises. These included, for example, accumulation or investments (gross or net). We decided against depending on gross investments as an indicator helping to evaluate the worth of changes at enterprises for the same reasons which made us reject the employment indicator. An additional factor leading us to discard the net accumulation or net investments indicator was the artificial nature of accounting techniques employed to determine depreciation allowances in Russian industry. We brushed aside those efficiency indices based on profits because we were aware of rampant – objective and subjective, inadvertent and deliberate - distortions of profits reported for accounting purposes.

We used the three efficacy-of-change criteria at the same time in order to divide all enterprises in each industry into three groups. The first group of "good" companies included those demonstrating favorable values of all the three indices (meaning that their GVA rose faster than their output, while their debit and credit indebtedness grew more slowly than their gross production). The second group of "satisfactory" enterprises included those reporting at least a single indicator (but not all of the three) confirming their headway to higher efficiency. The third group of "unsatisfactory" enterprises comprised those which failed in 1999 to meet even one of the three designated conditions implying effective changes for the better.

Those indicators describing the comparative efficiency of companies at a specific time (1998 or 1999) were invoked as an ancillary tool of research. This was done where it was possible to identify representative groups of enterprises within an industry, which were distinguished by different values of the selected efficiency indicators. The cautious attitude taken to such indicators as the share of GVA in output, the share of accounts receivable in output, and the share of accounts payable in output was, as already explained above, owing to the difficulty of construing these indicators. When it came to an individual enterprise, we could only reach conclusions on the extent to which its relevant indicators differed from the corresponding averages for the industry as a whole. However, we did not deem it possible to interpret such variations as pointing to efficiency or inefficiency for the following reasons.

Firstly, we could say nothing of the efficiency or inefficiency of the average values of the corresponding indicators in each particular industry as a whole. Secondly, a company's departure from the industry's average indicators could be due to factors outside the scope of our monitoring, which could be connected with the history of the enterprise, distinctive features of its production facilities, or start-up conditions of competition.

6.3. MOVEMENTS IN PRODUCTION EFFICIENCY IN 1998-1999: COMPARATIVE ANALYSIS OF DIFFERENT INDUSTRIES

In order to compare short-term changes in production efficiency in different industries, we calculated the shares of the three groups of enterprises identified as described above (with the first including companies showing favorable movements in their GAP and overdue receivables and payables, the second made up of factories reporting welcome progress in at least one of these indicators, and the third composed of enterprises with adverse dynamics in all of these respects). It is at the latter category of enterprises that

we looked in attempts at discovering the non-market sector defined as *a group of companies unable owing to the structural peculiarities of their respective industries or markets or due to their own institutional and organizational weakness to take advantage of the momentum created by the economic recovery in 1999 and improve their business performance indicators.*

It needs to be noted that the distinctive features of the sample of enterprises selected for the survey were not really conducive to our search for the non-market sector. The matter is that, as graphically demonstrated by data presented in Table 39 above, our sample tended to represent the more efficient companies in specific sectors. They used their human resources more capably, the result being that the share of low-performance producers among them was, more likely than not, somewhat smaller than the average for the corresponding industry as a whole. The enterprises covered in the survey were also relatively large. The influence of this factor on business performance is not as pronounced, but can be great.

The shares of the above three groups of enterprises in output from their respective industries and in the total number of people employed there are shown in Table 40 below. The relevant data demonstrates that the shares of third-group enterprises, which can conditionally be described as belonging to the non-market sector, varied perceptibly from industry to industry. Our sample was found to include none of the enterprises in *ferrous metallurgy or the chemical and petrochemical industries* that would simultaneously show a decrease in the share of GVA in output and an increase in the share of overdue accounts receivable and accounts payable in output. The proportion of such enterprises in the *food industry* turned out to be infinitesimal (some 1% of combined output). The largest shares held by third-group enterprises in gross output and the total number of employees were found in power generation and distribution, the building materials sector, and mechanical engineering.

It is easy to notice that only a relatively low number of enterprises showed manifestly favorable or unfavorable trends in their production efficiency. Most of the companies surveyed in each industry landed in the second group. This was partially owing to the short period of the assessment which only lasted for one year. Another partial explanation for the large size of the second group is the difficulty of classifying them properly. Information about their overdue receivables and payables for either 1998 or 1999 or for both years was missing in the case of a considerable number of enterprises. Therefore, the classification actually used resulted, most likely, in exaggerating the size of the second group of enterprises at the expense of the first group.

A comparison of the shares of enterprises in the three groups in the total number of people employed in and in combined output from their respective industries reveals that first-group enterprises in every industry showed higher output per employee than the average for the sample both in 1999 and, as a rule, in 1998. For their part, third-group companies during both years produced less per employee than the average in each industry. In other words, first-group enterprises in every sector monitored put their resources to more efficient uses than those included in the third group. This was an important finding for us, as it testified, even if indirectly, to the promising nature of employing the chosen rule for the grouping of enterprises. Power generation and distribution, however, constituted an important and interesting exception, because there first-group enterprises reported higher output per employee than the average for the sector, while third-group enterprises in 1999 used their human resources more efficiently than the sample as a whole. The paradox will be partially explained below in a more detailed review of companies in this sector.

The results of comparing the three groups for efficiency from the standpoint of the sizes of particular companies (based on the numbers of their employees) are not as unequivocal. In ferrous metallurgy, the chemical and petrochemical industries, mechanical engineering, and the building materials sector, the more sustainable companies in the first group were larger than the average for the total sample. In the timber, lumbering and pulp-and-paper, light, and food industries, on the contrary, they were smaller than the average. Third-group enterprises were found to be somewhat smaller than an average company in the sample (in the food and light industries) or equally-sized with it (in the building materials sector, the timber, lumbering and pulp-and-paper industries, and mechanical engineering). At any rate, we were unable to find any corroboration for the common myth that major companies are less adaptable and are unable to adequately profit by improved market conditions during an overall economic revitalization or upswing.

Table 40.

Three identified groups of enterprises in different industries: shares in output and in workforces (1998, 1999)

	1st group	2nd group	3rd group
Power generation and distribution			
Number of enterprises	7	17	5
Share in output (1998), %	19	59	22
Share in output (1999), %	25	59	16
Share in number of employees (1998), %	24	51	25
Share in number of employees (1999), %	46	42	12
Ferrous metallurgy			
Number of enterprises	3	15	0
Share in output (1998), %	61	39	0
Share in output (1999), %	68	32	0
Share in number of employees (1998), %	55	45	0
Chemical and petrochemical industries			
Number of enterprises	2	23	0
Share in output (1998), %	52	48	0
Share in output (1999), %	51	49	0
Share in number of employees (1998), %	17	83	0
Share in number of employees (1999), %	17	83	0
Mechanical engineering and metal-working			

Number of enterprises	21	183	24
Share in output (1998), %	14	76	10
Share in output (1999), %	20	73	7
Share in number of employees (1998), %	17	72	11
Share in number of employees (1999), %	17	72	11
Timber, lumbering and pulp-and-paper industries			
Number of enterprises	15	58	7
Share in output (1998), %	15	80	5
Share in output (1999), %	22	76	2
Share in number of employees (1998), %	15	78	7
Share in number of employees (1999), %	17	74	9
Building materials sector			
Number of enterprises	5	58	7
Share in output (1998), %	9	81	10
Share in output (1999), %	12	80	8
Share in number of employees (1998), %	11	80	10
Share in number of employees (1999), %	10	78	12
Light industry			
Number of enterprises	26	84	8
Share in output (1998), %	16	81	3
Share in output (1999), %	21	78	1
Share in number of employees (1998), %	13	83	4
Share in number of employees (1999), %	15	80	5
Food industry			
Number of enterprises	21	128	5
Share in output (1998), %	8	91	1
Share in output (1999), %	11	88	1
Share in number of employees (1998), %	11	86	3
Share in number of employees (1999), %	11	86	3

There is yet another important and noteworthy regularity. Inefficient use of labor was typical of third-group enterprises in every sector. Furthermore, in a number of industries (including *the timber, lumbering and pulp-and-paper industries, the building materials sector, and light industry)* their share in the total number of employees during 1998-99 increased, while the combined workforce at the companies included in the survey shrank. In other words, companies putting up worsening performances trimmed their staffs more slowly than others. This is further evidence to support the long-established fact that *redundant labor at Russian enterprises detracts from their operating efficiency.* Surplus employment, in all likelihood, makes an all-round adverse impact on the cost-effectiveness of production operations.

For the purposes of a more in-depth analysis of changes in production efficiency, we performed a comparative review of enterprises covered by the survey in three industries, namely: mechanical engineering, the building materials sector, and power generation and distribution. The reasons for their selection are self-evident: the third group of enterprises there is the most representative. We were interested above all in respondents' answers to those questions in the questionnaire which would enable us to compare important aspects of governance over enterprises showing different dynamics in production efficiency indicators.

6.3.1. FACTORS FOR CHANGES IN PRODUCTION EFFICIENCY: MECHANICAL ENGINEERING

The basic characteristics of mechanical engineering factories which belong to different groups of enterprises in terms of changes in their production efficiency are reflected in Table 41(M-1). It is necessary to stress once again than our sample was representative of the better segments of the industries monitored. This was also manifest in production trends revealed: output by mechanical engineering companies covered by the study from 1998 to 1999 grew on average by 75%, while that from this industry as a whole only rose by 18%. Similarly, the number of those employed by such enterprises over the same time went up by 18% compared with 3% growth in the industry in general. It was inevitable, therefore, that when analyzing third-group enterprises in the sample, we were actually looking not at the absolutely worst performers in the industry, but at "the worst among the best".

Those third-group enterprises produced somewhat less products and employed somewhat fewer people on average than other companies in the sample. Their output and workforces remained virtually intact during the year under review. In 1999, their GVA-to-output ratios were substantially lower on average compared with the others in the sample. In 1998, however, these indicators were only a little below the average. In other words, when exploring the mechanical engineering sector we found no substantially large group of enterprises that would show both the lowest efficiency in 1998 and the worse characteristics of efficiency changes between 1998-99. This means that we were unable to identify any steady non-market segment in the mechanical engineering sector.

Table 41(M-1).

Mechanical engineering factories: basic characteristics (average values, with standard deviations shown in brackets)

	1st group	2nd group	3rd group	Average
Number of enterprises	21	182	24	227

Output of goods and services, exclusive of excises and VAT (ths. rub.), in 1998	64,174 (116,377)	39,669 (89,583)	38,331 (54,148)	41,795 (89,306)
Output of goods and services, exclusive of excises and VAT (ths. rub.), in 1999	134,053 (257,564)	58,821 (103,819)	40, 517 (75,065)	64,154 (125,927)
1999 output to 1998 output (times)	2.13 (0.83)	1.80 (1.06)	1.00 (0.53)	1.75 (1.03)
Average employee strength (employees), in 1998	762 (1,722)	367 (552)	407 (475)	408 (736)
Average employee strength (employees), in 1999	680 (1,671)	339 (534)	360 (435)	374 (717)
1999 employee strength to 1998 employee strength (times)	1.22 (2.60)	1.20 (2.58)	0.99 (0.41)	1.18 (2.34)
GVA to output ratio in 1998	0.35 (0.22)	0.47 (0.23)	0.42 (0.29)	0.46 (0.24)
GVA to output ratio in 1999	0.50 (0.19)	0.44 (0.20)	0.23 (0.25)	0.42 (0.21)

The above data does not make it possible to draw a substantiated conclusion about "typical" dimensional characteristics of enterprises in the three identified groups. The scope of observations was so extensive that it is impossible to speak of an acceptable reliability of measuring average output, employee strength and GAT-to-output ratios.

Let us note, however, that the group of the better companies during the time under review were able to appreciably improve efficiency in using their human resources. The detected gains in production efficiency should in many ways be explained by redundant-staff cutting at first-group enterprises.

Interestingly enough, changes in payrolls at mechanical engineering factories showed significant differences from group to group. On average, compensation per employee at such factories during the year under review almost trebled from RUR 33,500 to RUR 94,000. At third-group enterprises, however, it only increased less than twofold (from RUR 29,000 to RUR 51,000) and at first-group factories it grew by more than five times from RUR 28,000 to RUR 153,000).

The principal factor for changes in the economic positions of mechanical engineering factories is demand for their products. As demonstrated by data in Table 42 (M-2), enterprises in the three groups identified in this sector have different portfolios of orders. Only in the first group, the vast majority of companies (more than two-thirds) accepted enough orders to keep them busy for over three months, while more than two-thirds of respondents in the third group had orders to last them for less than three months.

Table 42 (M-2).

Replies to question "For how long ahead was your enterprise provided with orders in 2000?" (number of respondents)

Optional answers	1st group	2nd group	3rd group	Total
For up to one month	3	21	1	25
For between 1-3 months	2	39	9	50
For between 3-6 months	6	28	2	36
For between 6-12 months	5	22	1	28
For over 12 months	1	3	0	4
Hard to say	0	4	0	4

Total	17	117	13	147

It is necessary to note that over the past three years, the temporary structure of orders showed improvements in the case of enterprises in each of the three groups. Data in Table 43 (M-3) shows vividly that compared with 2000, mechanical factories' order portfolios in 1998 were smaller, assuring them of work loads for generally shorter future periods. First-group companies since then enjoyed a marked expansion in their order portfolios, but third-group enterprises benefited from a general increase in demand as well. More than one-half of respondents in the latter group in 1998 had only enough orders to last them for less than one month, and so the fact that this indicator in many cases went beyond one month in 2000 served as a sign of noticeably rising demand.

Table 43 (M-3).

Replies to question "For how long ahead was your enterprise provided with orders in 1998?" (number of respondents)

Optional answers	1st group	2nd group	3rd group	Total
For up to one month	3	28	7	38
For between 1-3 months	5	41	5	51
For between 3-6 months	5	26	1	32
For between 6-12 months	3	17	0	20
For over 12 months	0	2	0	2
Hard to say	1	3	0	4
Total	17	117	13	147

High demand for products on offer from first-group enterprises was in many ways a result of their successful marketing policies. The activity of the three groups of companies in introducing new products to the market is illustrated by Table 44 (M-4). The impression is that first-group companies launched new products no more frequently than the others, but their efforts at updating or diversifying their product lines proved more effective than similar endeavors by enterprises in the other two groups.

Table 44 (M-4).

Answers to question "Has your enterprise over the past three years launched any fundamentally new products?" (number of respondents)

Optional answers	1st group	2nd group	3rd group	Total
Yes, with a negative result	0	1	1	2
No	5	22	1	28
Yes, with a minimum positive result	2	38	7	47
Yes, with a visible positive result	10	42	2	54
Total	17	103	11	131

The respondents' replies to the question about whether they had lately attempted to enter any new markets showed a similar pattern (Table 45 (M-5)). It appeared that unlike companies in the second and third groups, first-group enterprises either did not

mount any efforts to branch out into new markets or were simply better than the others at penetrating new marketing fields.

Table 45 (M-5).

Answers to question "Has your enterprise over the past three years attempted to enter any new markets?" (number of respondents)

Optional answers	1st group	2nd group	3rd group	Total
Yes, with a negative result	0	1	0	1
No	6	25	3	34
Yes, with a minimum positive result	3	51	5	59
Yes, with a visible positive result	7	25	3	35
Total	16	102	11	129

Yet, it cannot be said that third-group enterprises, or the "lame-duck" category, demonstrated a lower marketing activity. The impression is that most of these companies, just as those reporting favorable changes in the added value, account receivable and account payable indicators, also made efforts to establish footholds on new markets and launch new products, but failed to achieve the same measure of success as first-group enterprises.

The latter were active not only in updating their product lines and mastering new markets. More than one-half of respondents in this group (who answered the corresponding question) invested in new production capabilities with substantial positive results (Table 46 (M-6)). It is noteworthy yet again that the more sustainable companies not so much make heavier investments as more often obtain noticeable encouraging results by investing in new facilities.

Table 46 (M-5).

Answers to question "Have any new facilities been brought on stream at your factory?" (number of respondents)

Optional answers	1st group	2nd group	3rd group	Total
Yes, with a negative result	0	1	0	1
No	6	54	6	66
Yes, with a minimum positive result	1	19	4	24
Yes, with a visible positive result	7	27	1	35
Total	14	101	11	126

Analysis of the pattern of payments to mechanical engineering factories for products shipped (Table 47 (M-7)) reveals that related differences between such enterprises belonging to different groups tended to even out from 1998 to 2000. It should also be noted that these patterns underwent different changes within specific groups of companies. Third-group enterprises during those three years increased the share of payments received in cash by a larger margin and decreased the share of products shipped on credit compared with companies in the other two groups. It is not ruled out in this connection that the deterioration of efficiency indicators during 1998-1999 came substantially as a result of companies' efforts to improve the structure of their settlements with buyers. Their striving to reduce the share of products supplied for

payment at a later date and to increase that paid for in cash could have required their curtailment of sales and/or price reductions, which could, in turn, have adversely affected the production efficiency indicators that we focused on.

Table 47 (M-7).

Pattern of settlements for mechanical engineering products shipped (average weighted values, in percent)

	Number of respondents in group	Before the 1998 crisis		End of 1998		End of 2000	
		Supplied on credit*	Paid for in cash	Supplied on credit*	Paid for in cash	Supplied on credit*	Paid for in cash
1st group	8	20.6	58.1	21.5	53.8	24.4	68.4
2nd group	40	18.2	44.4	19.9	46.4	23.7	52.0
3rd group	7	20.3	34.1	18.6	34.2	16.5	66.1

* With payment delayed by three months or more.

The findings of the poll debunk the common belief that there is a clear and enduring connection between a company's production efficiency and the structure of its settlements. More likely than not, the specific conditions of decisions allocating the portions of output to be sold for immediate cash payment, on credit or on other terms are so varied that gains in production efficiency can in different situations be achieved either by increases or by decreases in the shares of supplies made for payment on an installment basis, for payment other than in cash, and otherwise. However, cash payments remain a relatively most attractive option, as demonstrated by the growth of their share in the structure of settlements by mechanical engineering factories in all the three groups.

When judging industrial enterprises' performances, it is important to determine the extent to which their successful showings depend on access to resources. Judging by the results of our survey, companies in the three groups share the same possibilities of obtaining one of the most crucial resources – bank loans (Table 48 (M-8)). Regardless of their performances, most companies find such borrowings either completely out of bounds or hard to arrange.

Table 48 (M-8).

Replies to question "How easy is it for your firm to obtain a bank loans against the security of its current assets?" (number of respondents)

Optional answers	1st group	2nd group	3rd group	Total
It is outright impossible	3	28	2	33
It is difficult, not easy	9	58	7	74
It is easy enough	5	20	3	28
Hard to say	0	11	1	12
Total	17	117	13	147

Therefore, certain conclusions can be drawn about the characteristics of those mechanical engineering enterprises which showed a decline in their production efficiency. Those were companies of different sizes, which in 1998 boasted virtually the same production efficiency as other factories in this industry, but let GVA share in their output contract substantially by 1999. They also enjoyed relatively low demand for their products, although it increased during the economic upturn in 1999. The low demand can hardly be explained by the hapless companies' low marketing activity, as they were as busy as others in trying to enter new markets and master new products. They had the same measure of access to loans as other mechanical engineering producers. Their patterns of settlements in 1999 underwent perceptible improvements and this may well explain why their production efficiency indicators worsened. These enterprises responded to the (at least relative) deterioration of their economic positions by making relative cuts in payrolls, while seeking at the same time to retain their staffs in full strength. Quite possibly, this could be their main problem, considering the numerous negative side-effects of "redundant employment" in Russia.

6.3.2. FACTORS FOR CHANGES IN PRODUCTION EFFICIENCY: BUILDING MATERIALS SECTOR

Just as in mechanical engineering, the sample of enterprises surveyed in the building materials sector included those which showed faster increases in production and faster decreases in their personnel strength than average companies in the same line of business. A typical enterprise in the sample increased output by 36% in 1999 compared with 1998, while cutting its workforce by 2%. In contrast, the building materials sector as a whole over the same time increased its output by 14%, with the number of people employed there remaining practically unchanged.

Table 49 (C-1).

Enterprises in the building materials sector: basic characteristics (average values, with standard deviations shown in brackets)

	1st group	2nd group	3rd group	Average
Number of enterprises	5	58	7	70
Output of goods and services, exclusive of excises and VAT (ths. rub.), in 1998	52,297 (36,406)	39,470 (81,592)	43,374 (79,392)	40,776 (78,333)
Output of goods and services, exclusive of excises and VAT (ths. rub.), in 1999	90,405 (97,240)	54,268 (113,111)	42,661 (79,954)	55,688 (108,533)
1999 output to 1998 output (times)	1.51 (0.75)	1.39 (0.60)	0.99 (0.32)	1.36 (0.60)
Average employee strength (employees), in 1998	413 (390)	247 (374)	261 (421)	260 (56)
Average employee strength (employees), in 1999	292 (170)	218 (360)	273 (433)	229 (354)
1999 employee strength to 1998 employee strength (times)	0.83 (0.23)	0.95 (0.43)	1.38 (1.58)	0.98 (0.62)
GVA to output ratio in 1998	0.16 (0.16)	0.44 (0.17)	0.45 (0.26)	0.42 (0.19)
GVA to output ratio in 1999	0.38 (0.22)	0.43 (0.20)	0.29 (0.17)	0.42 (0.19)

Just like in mechanical engineering, building materials companies in each group differed most starkly in terms of the indicators monitored, once again calling for caution in interpreting average values reported. Unlike mechanical engineering, however, the few companies making it to the third group in the building materials sector were only slightly different in size from the average in the sample. While maintaining their production in 1999 at the same level as in 1998, they did so with a greater number of workers. In contrast, first-group enterprises, just like in mechanical engineering, tended to reduce excessive employment and, moreover and unlike mechanical engineering counterparts, made staff cuts in absolute terms. Just like their opposite numbers in mechanical engineering, third-group enterprises in the building materials sector had on average higher GVA-to-output ratios. Also just like in mechanical engineering, it proved impossible in this sector to find companies that would show both the lowest GVA-to-output ratios in 1998 and subsequent drops in production efficiency.

We were unable to discover any differences between enterprises in different groups when sizing up their order portfolios. Furthermore, there were practically no positive shifts in this respect in evidence between the years 1998 and 2000. Judging by respondents' answers, more than one-half of enterprises in the building materials sector at any time in 1998 had enough orders only to last them for less than three months and this remained basically the same in 2000 as well. The relatively large proportion of enterprises with negative dynamics in terms of GVA, receivables and payments in the sector was due to the fact that building materials companies experienced a lower rise in demand compared with other industries.

Yet, this sector, as well mechanical engineering, demonstrated a positive dependence of changes in production efficiency on the success of companies' efforts to encourage demand. All (the three) respondents in the third group said no in answer to the question "Has your enterprise over the past three years come to have any new Russian partners?" Of the four respondents in the first group, only one answered the same question in the negative. The others reported tangible favorable results in penetrating new markets.

So few building materials enterprises supplied information about the structure of their settlements that the resulting data could hardly be compared with other results. However (Table 50 (C-2)), third-group companies in the sector demonstrated, as anticipated, the worst patterns of settlements with users of their products – the smallest share of payments in cash and the largest share of supplies paid for on a deferred basis. The share of products supplied by third-group enterprises to be paid for after more than three months' delay grew again by the end of 2000 after diminishing visibly by the end of 1998.

Table 50 (C-2).

Pattern of settlements for products shipped by enterprises in the building materials sector (average weighted values, in percent)

	Number of respondents in group	Before the 1998 crisis		End of 1998		End of 2000	
		Supplied on credit*	Paid for in cash	Supplied on credit*	Paid for in cash	Supplied on credit*	Paid for in cash
1st group	4	20,0	23,0	16,5	26,7	16,5	44,0
2nd group	30	22,4	66,4	12,0	65,6	8,0	72,9
3rd group	2	30,0	3,4	10,0	6,2	45,0	15,0

* With payment delayed by three months or more

Just like in mechanical engineering, the three groups of building materials companies demonstrated no differences in access to bank loans. Such borrowings were inaccessible to about one-half of them, with the others (except for those two out of 40 which said they had no trouble getting a bank loan) reporting difficulties with obtaining such financial resources.

Therefore, in the building materials sector those companies with the worst trends in their production efficiency had the following characteristics. Differently sized, they all showed a higher GVA than the average in the sector in 1998 and a lower GVA in 1999. They did not enjoy any substantial demand for their products at the time of the economic recovery. They were passive on the market, but this factor alone cannot explain their poor business showing. Those enterprises in the building materials sector which sought to enter new markets and acquire new partners did not experience any marked increase in demand either. Their structures of settlements were the worst in the industry.

6.3.3. PROBLEM OF ADEQUACY OF PRODUCTION EFFICIENCY INDICATORS: POWER GENERATION AND DISTRIBUTION

The sample of power generation and distribution enterprises in our survey included the largest share of third-group companies in the sector's total output and employee strength and was also distinguished by the lowest number of adequate observations. Just like in other industries, our sample selected in power and distribution demonstrated better business performances compared with the average for this sector as a whole. The latter's output in 1999 was 10.5% on 1999, with the number of employees over the same time rising by 4.5%. Those companies included in the sample demonstrated a faster growth of both output and staffs.

Table 51 (Э-1) presents the basic characteristics of the three groups of companies identified in the sector. Given the spread in relevant values, it can be concluded unequivocally that there was no obvious connection between changes in production efficiency and the size of an enterprise. One thing struck the eye: first-group companies, i.e. those showing steady improvements in production efficiency, also demonstrated the lowest efficiency in using their resources (by employing on average almost thrice as

many people to produce even less than enterprises included in the second and third groups). Third-group enterprises, in contrast, produced the highest output per employee both in 1998 and in 1999.

Table **51 (E-1).**

Enterprises in power generation and distribution: basic characteristics (average values, with standard deviations shown in brackets)

	1st group	2nd group	3rd group	Average
Number of enterprises	5	17	7	29
Output of products and services, exclusive of excises and VAT (ths. rub.), in 1998	816,787 (1,684,668)	933,870 (3,007,306)	987,768 (1,424,098)	914,902 (2,463,615)
Output of products and services, exclusive of excises and VAT (ths. rub.), in 1999	1,102,383 (2,335,974)	1,083,241 (3,427,736)	962,670 (1,356,779)	1,067,074 (2,854,581)
1999 output to 1998 output (times)	1.42 (0.29)	1.56 (1.42)	0.93 (0.14)	1.42 (1.10)
Average employee strength (employees), in 1998	2,053 (4,200)	986 (2,101)	602 (554)	1,177 (2,573)
Average employee strength (employees), in 1999	2,042 (4,125)	777 (1,795)	724 (661)	1,073 (2,420)
1999 employee strength to 1998 employee strength (times)	0.99 (0.13)	1.12 (0.54)	1.20 (0.22)	1.08 (0.36)
GVA to output ratio in 1998	0.27 (0.38)	0.49 (0.22)	0.35 (0.07)	0.41 (0.26)
GVA to output ratio in 1999	0.47 (0.20)	0.42 (0.22)	0.20 (0.10)	0.39 (0.21)

A comparison between first-group and third-group enterprises revealed paradoxical changes in output and employment levels. The former enterprises employed a little less workers in 1999 than in 1998, while the latter increased their staff strengths fairly considerably. They also increased payrolls (from RUR 71,000 to 95,000 [per employee on average]), while comparable spending at first-group companies decreased from RUR 88,000 to RUR 35,000. The impression was that the criteria we chose to determine production efficiency reflected actual changes in the results of business activities in a directly opposite direction.

It proved difficult on the basis of respondents' answers submitted to ascertain the impact of the upturn in 1999-2000 on the economic positions of enterprises in the three groups identified in the power generation and distribution sector. As a result of the latter being an industry subject to special regulation, with there being a category of consumers which could not be cut off from electricity supplies no matter what, a company's provision with orders cannot serve as an indicator of demand for its products and services. The vast majority of respondents, regardless of how they fared commercially, said that both in 1998 and 1999 they had enough orders to keep them busy for more than 12 months.

It could be expected that changes in the pattern of settlements for products and services supplied was a key indicator of changes in demand. The economic revitalization in 1999-2000 was to result in a growing share of cash payments in power generation and

distribution companies' revenues. Those companies able to secure such increases were also expected to show the best improvements in their business performances.

A comparison of the efficacy of dynamics shown by enterprises with the forms of payment they received for their products and services (Table 52 (Э-2) yielded a surprise. Those companies demonstrating the best dynamics in terms of their GVA, receivables and payables, i.e. first-group enterprises, supplied the largest portion of their output on credit (repayable over three months or more) and received the lowest proportion of payments in cash (including, as followed from wordings in the questionnaire, both ready money and bank transfers).

Table 52 (Э-2).

Pattern of settlements for products and services supplied by enterprises in power generation and distribution (average weighted values, in percent)

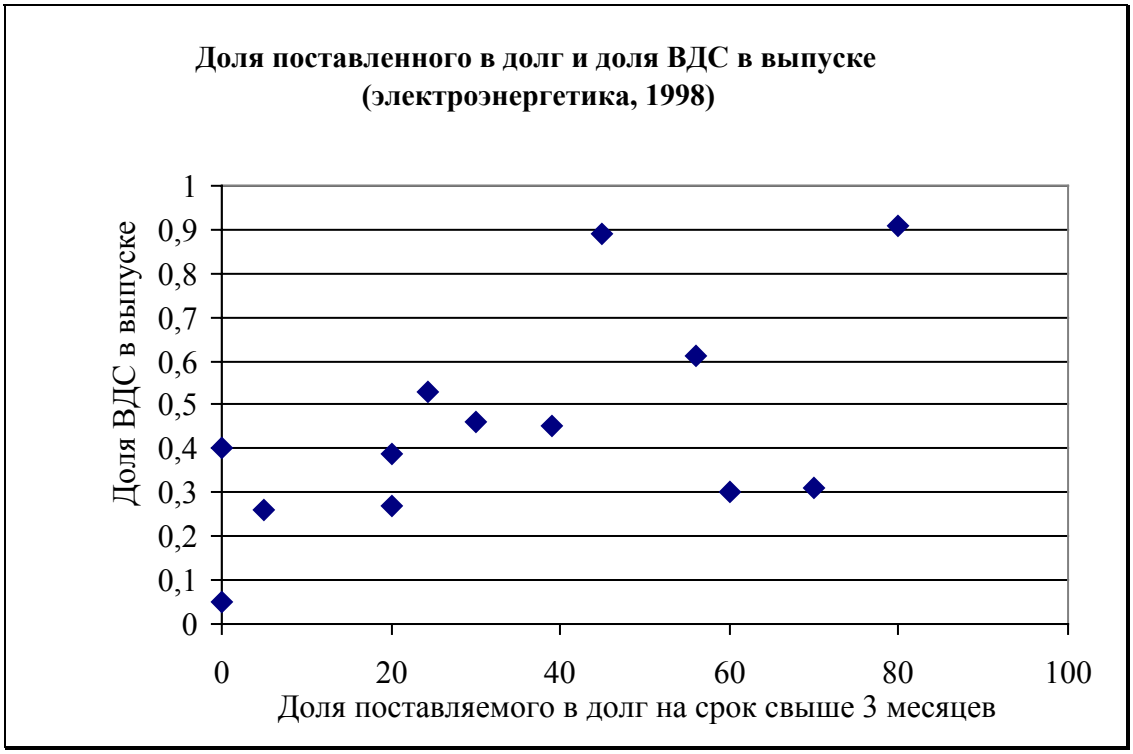
	Number of respondents in group	Before the 1998 crisis		End of 1998		End of 2000	
		Supplied on credit*	Paid for in cash	Supplied on credit*	Paid for in cash	Supplied on credit*	Paid for in cash
1st group	4	45.2	6.4	73.8	8.6	17.6	30.6
2nd group	12	24.7	47.3	35.6	41.6	17.1	89.9
3rd group	4	20.4	21.1	20.5	21.5	10.4	67.1

* With payment delayed by three months or more

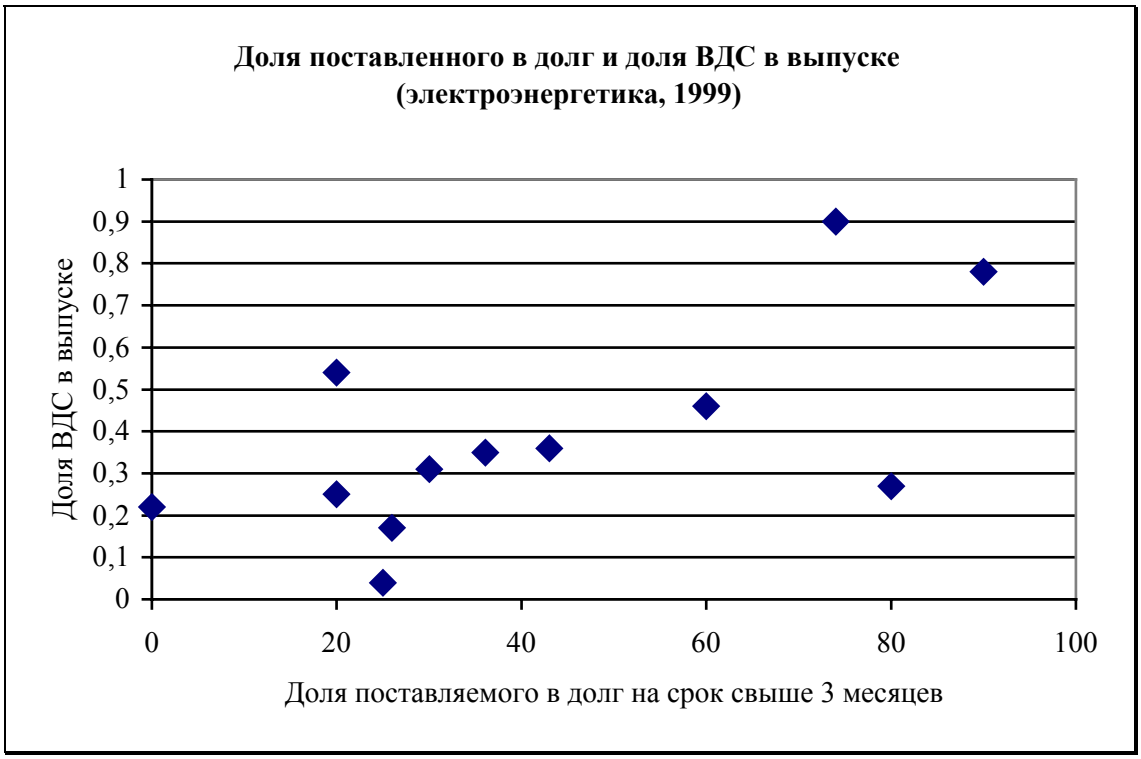
Furthermore, power generation and distribution companies showed a curious regularity. Both in 1998 and in 1999, the higher GVA-to-output ratios were demonstrated by those enterprises which also reported the larger shares of supplies for payment delayed by three or more months (Drawings E-1 and E-2). The impression is that efficiency indicators in the sector are decisively influenced by the "payment defaults-rates-payment defaults" spiral: the longer the period by which payment is deferred, the higher the rate charged by the supplier, but as rates are raised, buyers find themselves in a position to be able to pay them only after a longer delay. Under the circumstances, comparisons of GVA-to-output ratios or their movements do not furnish credible information about the actual state of affairs. Those enterprises which, at first glance, show positive development trends turn out in fact to be the least cost-effective. It is interesting that *this finding was true of only power generation and distribution, as no other industry was found to show a similar regularity.* In all likelihood, it is manifest in the power sector precisely because the majority of consumers there are effectively assured of continued supplies regardless of whether they pay for them or not.

Let us note that price hikes prompted by low buyer solvency go counter to the laws of a "normal" market economy. Therefore, the power generation and distribution sector can

be assessed as a portion of the non-market sector in Russian industry. It should be noted that the non-market nature of this sector is due not to any behavioral peculiarities or subjective adaptational capabilities of company managers, but to the special position of suppliers who in most cases cannot refuse to enter into contracts with buyers.



Drawing E-1



Drawing E-2

Answers to the question about the availability of bank loans in the power generation and distribution sector appeared paradoxical, but only at initial glance. Three enterprises said such loans were readily available for them, and one of these was in the third group. The other three in the same group said bank loans were available, though not readily, but subject to the provision of security and at a high interest rate. At the same time, two out of four first-group enterprises said obtaining a bank loan for them appeared utterly unfeasible. However, if one agrees that the approach we took to our research led to a complete distortion of the real situation in the power generation and distribution sector and that third-group enterprises cannot actually be included among the worst in the industry, because the latter consist in real fact of first-group companies, the resultant picture begins to look quite logical. In this case, we can conclude that the power generation and distribution sector shows a certain dependence of conditions for access to resources on the economic positions of companies.

The bottom line is that we cannot draw any conclusion about the distinctive features of those enterprises in the sector which showed the worst dynamics in production efficiency indicator movements in 1998-99, because the criteria we chose to use for the purpose do not actually work as intended. At the same time, the regularity we discovered whereby GVA as a indicator of production efficiency tended to rise as the structure of a company's settlements deteriorated suggests that the institutional distinctive features of electricity supplies result in distortions so substantial in incentives for decision-making on prices and other supply terms that we can include the entire power generation and distribution sector in the non-market segment of the Russian economy.

6.4. BASIC RESULTS OF SECTOR-BY-SECTOR DYNAMIC ANALYSIS

The results of our survey, we believe, suggest the following conclusions.

1. It is impossible to identify among the enterprises monitored during the review the non-market sector as a group of producers unable, for objective or subjective reasons, to adapt themselves to the changed conditions of doing business and to take advantage of the economic upswing in order to improve their performances. Among the 600 or so companies surveyed, only a relatively small proportion showed a decline in production efficiency in 1999 compared with 1998. Among different industries, such companies accounted for the largest shares of total output in power generation and distribution, mechanical engineering, and the building materials sector. Producers with declining efficiency are responsible for more than 10% of total output in none of the economic sectors reviewed.
2. The power sector occupies a special place among them. The GVA indicator there, more likely than not, fails to reflect actual production efficiency levels. The positive relationship detected between the share of supplies payable for after a delay of three or more months and the GVA indicator attests to the existence of the "debts-rates-debts" spiral. Price rises along with increases in the share of supplies not paid for, with a resultant accretion of debts, is typical precisely of the non-market sector where managers show an inadequate response to shaping market conditions. It should be stressed that the non-market nature of behavioral patterns demonstrated by enterprises in power generation and distribution is due, judging by all indications, to the existing system for the sector's regulation rather than to any subjective peculiarities of decision-making or management standards.
3. In other sectors, non-market conduct is characteristic to varying extents of all producers. A review of two industries – mechanical engineering and the building materials sector – revealed that both companies boasting the best dynamics in production efficiency trends and those showing the worse such dynamics

demonstrate virtually identical responses to changes in market conditions. In mechanical engineering, factories, regardless of their efficiency, are facing a noticeable increase in demand for their products. In the building materials sector, the growth of demand is not so conspicuous. It is important that all enterprises in the sector are experiencing even if not identical, but still fairly similar effects of rising demand. [Важно, что для всех предприятий отрасли эффект изменения спроса демонстрируют хотя и не одинаковую, но довольно близкую величину??].

4. Analysis of the data obtained in the survey for different economic sectors supports, in our opinion, the assumption that the decisive role in changing production efficiency is played by those factors which are typical of specific industries. This is corroborated by the following two observations. Enterprises with positive and adverse dynamics have substantially different shares in total output and employee strength in different sectors. The vast majority of companies in 1999 achieved either a relative growth of GVA or a relative reduction in accounts receivable and accounts payable. But differences both in the number of and output from those enterprises reporting improvements in all the three efficiency indicators monitored and in the number of and output from those reporting a worsening of all these indicators can be seen per se as evidence that there are important distinctive features in each industry which decisively influence the conduct and business performances of companies there. Another indirect confirmation that sectoral factors for the shaping of business results prevail over individual behavioral features is constituted by differences in the characteristics of enterprises reporting the best and those reporting the worst changes in production efficiency in mechanical engineering and the building materials sector.
5. No matter how different those companies which showed a decline in production efficiency in different economic sectors in 1999 were, they had one thing in common, namely, inefficiency in using their human resources. Additional evidence was obtained to confirm that “redundant employment” is partly a cause and partly a symptom of decreases in production efficiency in Russian industry.

ANNEX 1. MONITORING DATA EXCLUDED FROM SURVEY

Before getting down to analysis proper, we screened incoming inputs to weed out those containing fallacious data. This was done on the basis of comparing different indicators characterizing the activities of a specific enterprise. Typical reasons for barring a company from being included in the review included:

- GVA larger than gross output;
- Profits larger than GVA (or output); or
- Shipments several (4-5) times larger than output.

In addition, three companies in mechanical engineering had to be deleted from the list as well to ensure that the numbers of enterprises monitored in 1998 and 1998 were identical. Information about the number of enterprises excluded from analysis and the numbers of corresponding observations is contained in the Table in Annex 1. The distinctive features of our research required that, should such a mistake be discovered in any one year, the entire company should be excluded from further monitoring.